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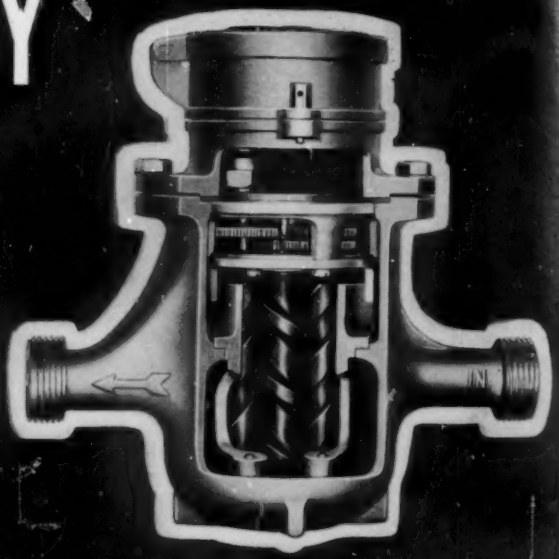
HERE'S PITTSBURGH IMO ACCURACY

Not this

The following standard specifications cover the accuracy requirements of the American and New England Water Works Associations for ⅝" cold water meters. Any conventional disc meter will meet them.

Allowable range (spread), 1 to 20 g. p. m., 4%

Minimum Test Flow, ¼ g. p. m., 90%



Or this

SPECIFICATIONS FOR BETTER QUALITY DISC METERS:

Allowable range (spread), 1 to 20 g. p. m., 2.2%

Low Flow Test, ¼ g. p. m., 95%

Minimum Test Flow, ⅛ g. p. m., 90%

But this

STANDARD SPECIFICATIONS FOR PITTSBURGH IMO METERS:

Allowable range (spread), 1 to 20 g. p. m., 1.2%

Low Flow Test, ¼ g. p. m., 98%

Minimum Test Flow, 1/12 g. p. m., 90%

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Quality and Price in Municipal Purchasing

For Greater Efficiency in Public Buying

THE problem posed in the editorial on this page last September, "Quality, or Price, in Public Buying?" becomes increasingly important as municipalities are facing probable curtailment of Federal aid for local public works. To buy efficiently involves, of course, much more than the honest selection of the "lowest responsible bidder." The new study by the Municipal Finance Officers' Association, abstracted on page 35, recommends that municipal officials:

"Award bids to the bidder with the lowest price whose product best meets the need of the using agency.

"See that purchases meet the required specification by applying laboratory tests on bid and contract samples wherever feasible.

"Require the inspection of the quality, price and quantity of all deliveries by a qualified individual."

On this subject THE AMERICAN CITY has received the practical comments from New York, Cincinnati and Milwaukee quoted below:

From Albert Pleydell,
Deputy Commissioner, Department of Purchase, City of New York:

THE Department of Purchase of the City of New York has devised several methods for securing higher quality. These methods may be discussed under two categories: the purchasing of genuine repair parts; and the encouraging of competition by responsible contractors.

It has been the policy of the Department since 1935 to insist that all parts purchased for the repair of mechanical equipment be bought either from the manufacturer or from the commercial sources which supply the manufacturer of the original equipment. The effect of this policy has naturally been to raise prices considerably over those charged by companies engaged in the so-called replacement parts business. But it has eliminated the necessity for performing elaborate tests to determine the quality of the parts delivered, has prevented damage to valuable equipment through the use of improperly designed replacement parts, and has reduced labor costs for repairs.

The Department has devised several methods by which the so-called "gyp" vendors have been practically eliminated, each device resulting in higher prices, but also in better quality. The first and obvious method is to raise the specification standards so as to insist upon high-quality material where quality is an important factor. Such high standards in the specifications prevent the unloading upon the city of inferior merchandise.

Another way to discourage the "gyps" is carefully to check all bids, insist that any deviation from the specifications be noted in the bids, and, where substitutes are offered for brands specified, inspect such substitutes before award. This general procedure results in contracts for the standard of quality originally specified.

After the contracts have been awarded and delivery is made, a careful and rigid inspection, coupled with prompt and accurate laboratory testing, likewise prevents the delivery and acceptance of inferior quality.

A new policy just adopted by the city of New York forbids the replacement of rejected merchandise and makes mandatory the procurement of such rejected items from other sources, with the additional costs assessed against the original contractor. This is expected to be another step in the drive to raise prices by eliminating from bidding those firms which consistently bid low but intend not to comply with the specifications for quality set in the bid.

From C. O. Sherrill,
City Manager, Cincinnati:

JUST how far municipal officials may go in awarding contracts on a price versus quality basis depends entirely on legal requirements governing. In Ohio, a contract may be awarded to the "lowest and best" bidder, permitting a certain amount of discretionary power. The courts have held that this power rests with the awarding official, unless it can be proved that the discretion was exercised with intent to defraud.

Here in Cincinnati, we make every effort to carefully draw out specifications, permitting open competition, at the same time providing for the quality necessary for the intended service.

In the absence of a complete specification, quite often it is necessary to evaluate bids. In the purchase of equipment, this usually becomes quite involved, especially when we attempt to set up a method of evaluation to be included in the computation of bids. Because we must at all times be prepared to substantiate a selection of a higher priced piece of equipment, the evaluation must be based on simple facts, such as repair costs, probable life, efficiency, etc., which are easily understood and may be presented to convince any one concerned of the ultimate economy to be effected by the award.

In the purchase of certain materials, such as paints and lacquers, particularly street-marking lacquers, we have a more definite measuring stick of quality. Among other things, we include a "practical street" test in the specifications. Samples are obtained and a comparative test on the street surface, under actual working conditions, is conducted over a period from thirty to ninety days. The results are tabled and included in the computation of bids, and the selection made on the basis of the lowest ultimate cost over a given period.

Since it is generally conceded that the lowest initial cost is not always the lowest ultimate cost, I believe that municipal purchasing officials should stress the use of clearly defined specifications which would insure receiving from the low bidder the quality necessary for the required service.

From Joseph W. Nicholson,
Purchasing Agent, Milwaukee:

WE have never considered price alone as the governing factor in making purchases for the city of Milwaukee. Price, quality and service are the three factors which we consider in making our selection of products and contractors.

Following considerable difficulty with irresponsible and incompetent contractors, the School Board of the city of Milwaukee succeeded in having a state law passed which provides that the awarding authority on public contracts may prequalify bidders. The law provides further that if the awarding authority is not satisfied that the prospective bidder has the proper experience or qualifications to carry out the contract, he may be excluded from bidding.

In order that information may be obtained on which an investigation may be made prior to deciding upon a vendor's qualification, the Central Board of Purchases, through this department, requires all prospective bidders regarding whose ability there may be doubt, to fill out a prequalification questionnaire. The information contained in these questionnaires is held in confidence, but forms a basis for investigation.

Having prequalified a bidder, the next step is to be sure that specifications provide no loopholes for shoddy merchandise to be delivered. Specifications should also set forth the methods of test which the city intends to apply to the delivered product before acceptance. In other words, a specification is not considered complete unless, besides describing in detail the article desired, it also provides for the methods of test.

I believe that purchases made for Federally aided projects should be surrounded by similar conditions in order to be assured of prompt service and a satisfactory product.

By Right of Conquest

THROUGHOUT the entire world, and frequently under the most adverse climatic and water-producing conditions, Layne Wells and Vertical Centrifugal Pumps have more than made good and fully won their uncontested right to claim outstanding superiority in design, construction, quality, and satisfactory performance.

In well sizes from four to sixty inches, and in depths up to 3,000 feet, the record of highest gallonage of water per dollar of annual cost is unmatched by competitive equipment.

So by right of conquest, by proven efficiency during more than half a century of actual use, Layne is fully privileged to claim superiority. Such a record justifies your most serious consideration of Layne Wells and Vertical Centrifugal Pumps on any project where a dependable supply of water must be obtained at a minimum annual operation and upkeep cost.

Let us send literature which fully explains the exceptionally interesting features of Layne Wells and Pumps. Address LAYNE & BOWLER, INC., Dept. B, Memphis, Tenn.

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Our Municipal Notebook

Good Work with Radio Motorcycles

A HUNDRED cities of medium population own 399 police motorcycles, 664 patrol cars, and 153 police trucks. In 38 of these cities, there are 194 motorcycles equipped with radio, and a number of other motorcycles are to be radio-equipped.

Augusta, Ga., has 14 motorcycles equipped with intermediate-frequency receivers, and finds reception satisfactory. Chief of Police C. J. Wilson says, "They respond to fire alarms, wrecks, and other calls within three minutes."

Chief of Police R. B. Powers, Bakersfield, Calif., where all seven of his Harley-Davidson motorcycles are equipped with intermediate receivers, says: "Ours was the first department in the world to have all motorcycles radio-equipped, in 1932; reception satisfactory."

"We have found that motorcycles equipped with radios give faster services on all calls, especially on traffic accidents," says Captain of Traffic E. S. Monrieff, Columbus, Ga.

The four radio-equipped Indian motorcycles of Davenport, Iowa, have the "facility for moving to scene of alarm at speed better than squad cars and are especially useful in accident and traffic-jam cases," says Chief Reed Phillips.

All the Louisville, Ky., motorcycles are radio-equipped, and after four years' experience they have developed the same indispensability as radio on cars.

The essentials for satisfactory operation of radio on motorcycles are:

1. Correctly designed receiver.
2. The receiver must be factory-built, incorporating the knowledge gained by experience in this branch of police radio.
3. A suitable charging generator must be provided, and the battery watched.
4. The equipment must be maintained.

Fog

ON the morning after a serious fire in the big A & P store in Passaic, the agents for the property wrote Chief Engineer William H. Coffey of the Passaic Fire Department: "We realize that this blaze could have been far more serious had it not been dealt with in such an efficient and prompt manner, and you are to be commended for the judgment which the members of your Department used in reducing water damage to a minimum." What Chief Coffey did at this fire was to use a fog nozzle, specifically the Griswold Fognozl, which he says, "certainly saved this company considerable damage to stock, fixtures and building." The Fognozl on a 6-foot applicator threw only 10 gallons of water per minute at 50 pounds pressure.

Courtesy of Fyr-Fyter Co., New York

FOGNOZLING A 15-FOOT DISTILLATE-OIL TANK FIRE

The rapidly increasing use of fog or vapor nozzles—simple, inexpensive little devices, constitutes a great stride forward in fire engineering—the extinguishment of fire with minimum water damage. Moreover, in the hands of skilled firemen, they have been proved to be efficacious in the extinguishment of oil and electrical fires. Only two years ago it was believed to be unsound to use water, in any form, on such fires. The successful use of an Akron vapor nozzle on the oil transformer fire at Essex Power House at Harrison, N. J., on December 28, 1936, destroyed this tradition. Another advantage is that in arson fires, fog does not disturb or destroy evidence.

What About School Traffic?

HOW many cities feel that too many policemen are used to supervise traffic to and from the schools during the danger hours?

Mayor Harry E. Newell of Bloomfield, N. J., states that practically his entire shift of police is needed, which leaves the city inadequately protected against crime, accidents, fires, and other duties.

Bloomfield has 65 policemen on three shifts, a maximum of 16 men per shift. Four of these men are on fixed posts, leaving 12 mobile—eight in four cars equipped with Westinghouse two-way radios, and four men in two radio cars on reserve. During the hours of school-traffic activity all twelve men are needed.

THE AMERICAN CITY would be glad to hear what other cities do about this problem. If you hire older men to be on duty during these hours: What kind of men are they? How many hours do you employ them? What do you pay them?

The Traffic Signal City

TRAFFIC-SIGNAL equipment contracts to the value of $100,000 have just been awarded by the New York City Police Department as follows: 500 control boxes to General Electric Co., Schenectady; 600 four-way lanterns to Ruleta Co., Inc., New York; 375 one-way lanterns to Master Equipment Corporation, Amherst, Ohio. Another $100,000 letting will soon take place, and by the end of the year the city should have 8,600 intersections equipped with 12,000 signals.

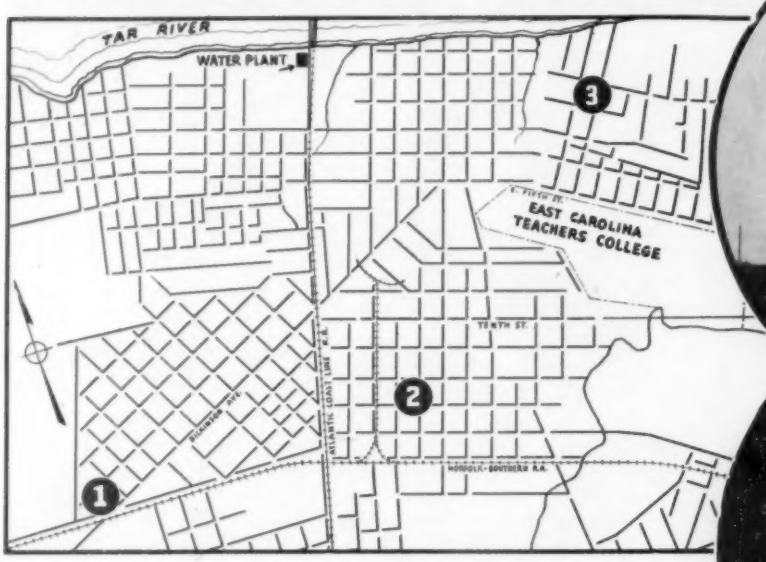
Improve Transit and Reduce Congestion

CHARLES E. CONLEY, City Planning Engineer of Cleveland, Ohio, believes that "if reasonable use of mass transportation were made, the congestion on our streets, both in the downtown area and in the outlying sections, and particularly the parking congestion in the downtown area, would be almost completely relieved; that is, if those whose income does not really warrant driving their own cars to their regular employment were using the more economical transportation service, there would be ample room on our streets for the remaining vehicles and there would be no serious parking situation in the downtown district, in the industrial areas, or in the vicinity of public schools. A check of WPA projects in the Cleveland district indicates that there is one car for every two or three workers."

Whether it is Cleveland or any other city, or transportation or any other industry, every business must be legitimately patronized in order to be prosperous and produce first-class service. Furthermore, when the thousands of potential patrons of mass transportation enter the central business district by ones and twos in automobiles, there is bound to be a traffic and parking problem which would be greatly relieved if enough people rode in the trolleys, trolley coaches and buses to and from work.

BUFFALO, N. Y.—Mayor Thomas L. Holling has signed a bill giving Buffalo a streamlined safety division of nine men and a full-time traffic engineer.

"DISTRIBUTED STORAGE"



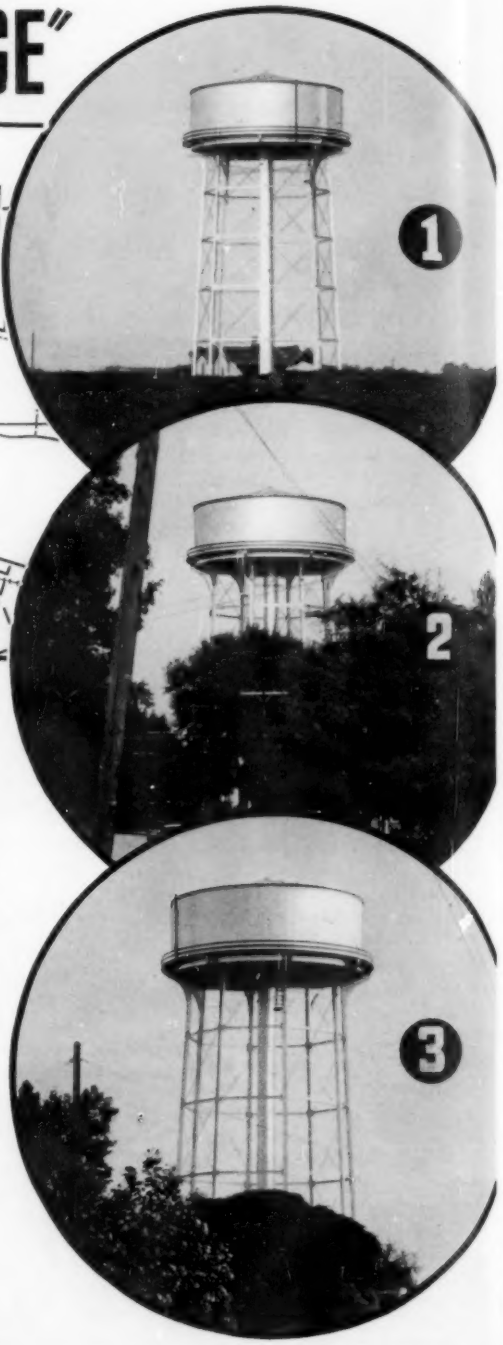
at Greenville, N. C.

ONE glance at the map shown above will give you a "bird's-eye" picture of the way in which Greenville, North Carolina, employs "distributed storage." After careful and comprehensive planning, Greenville decided on the installation of three 300,000-gallon Horton radial-cone bottom tanks in its waterworks system. These new tanks are strategically located where they will serve high-demand areas to best advantage.

"Distributed storage" is not an unusual practice. The advantages it offers are frequently utilized in municipalities where peak loads for given areas have outgrown the capacity of existing transmission mains. When this situation exists, a single large-capacity elevated tank may be unable to correct low-pressure conditions at any great distance from the tank itself. Thus, by installing two or more smaller tanks in fairly well distributed areas, the entire waterworks system is benefited by an adequate gravity water supply.

One of the major problems which existed in Greenville before the installation of the three new tanks was that of low-pressure conditions in the distribution system during heavy-demand periods. After the tanks were connected into the system, however, numerous readings showed a normal pressure of approximately 45 lbs. per sq. in. at all times.

Let us tell you more about the many ways in which modern elevated storage is helping to improve water supply systems throughout the country. Please address our nearest office for information or estimating figures.



Directly above are views of the three 300,000-gallon Horton elevated tanks recently installed in the Greenville, N. C., waterworks system. The condensed map of the city at the left, above, shows the location of each tank.

CHICAGO BRIDGE & IRON COMPANY

Chicago.....2127 Old Colony Bldg.	Philadelphia..1616 "1700" Walnut St. Bldg.	San Francisco.....1033 Rialto Bldg.
New York.....3308-165 Broadway Bldg.	Boston.....1501 Consolidated Gas Bldg.	Houston.....2919 Main Street
Cleveland.....2236 Rockefeller Bldg.	Birmingham.....1502 N. Fiftieth Street	Tulsa.....1625 Hunt Bldg.
Detroit.....1501 Lafayette Bldg.	Dallas.....1406 Liberty Bank Bldg.	Los Angeles.....1403 Wm. Fox Bldg.

Fabricating plants in CHICAGO, BIRMINGHAM, and GREENVILLE, PA.

The Human Side of Water Works

Inspections Eliminate Cross-Connections

EXTRAORDINARY precautions are being taken to eliminate all possible sources of danger of contamination of drinking water through faulty plumbing in hotels, restaurants and buildings serving the public in New York City, so that the drinking water will be safe during the expected influx of visitors to the New York World's Fair of 1939. The tragic outbreak of amoebic dysentery in two Chicago hotels in 1933 brought forcefully to the attention of the public the dangers that lurk in cross-connections and faulty plumbing, and New York City is taking steps to eliminate all hazards to the health of its citizens and of its visitors that may arise from defective plumbing.

In a sanitary survey of 1,200 buildings in New York City recently completed, the Health Department found 511 plumbing cross-connections, some of them of a serious nature. These conditions are now being corrected in anticipation of the heavy demands to be placed upon such facilities when millions flock to the World's Fair next year.

Public health officials in both large and small cities should make sanitary surveys of the plumbing facilities in hotels and large buildings. Municipal water plants take great care to safeguard the purity of the water supply, but it should be protected further when it enters the customer's premises. Such sanitary surveys to safeguard the public's health may well be undertaken as WPA projects, for possible danger to the water supply from defective plumbing is to be found in hundreds of cities, according to the American Water Works Association.

Customer Relationship

NO matter whether a water company or any other utility be publicly or privately owned, it faces the same problem of getting along with the people—and they are the same people. The public largely judges a water company and most other businesses by the people that represent it, and, from the manager down, every employee is a walking good-will agent or a public detractor from the reputation of the organization. There is no such thing in this respect as a happy medium. A utility employee is a boost or he is a knock for his company.

Job number one seems to be the development of personnel policies designed to make the organization a cohesive, cooperative and efficient group working for the best interest of the utility and its customers. Such matters as working conditions, group and accident insurance, safety work, recreational facilities and, last and most important, the attitude of the supervisory staff to the rank-and-file employees, are matters that could well be explored by water-utility managements desirous of strengthening the morale and friendship power of the operating personnel.

The next step in cultivating public friendship is a thorough analysis of the utility's attitude to its customers. This is the face that the company turns to the public. If that face is cold, severe, harsh, pompous or servile, there probably is not going to be much chance of cultivating this friendship. The public expects and demands from its water utility friendly, prompt, courteous and efficient service. This applies to all points of contact which it has with us. With the cooperation of the working personnel and the proper training and selection of individuals for the particular jobs, much can be done to win and keep public friendship.

Other matters come up in the course of operation which might be classified as irritants. These are considerably more difficult to solve, yet a sincere and careful effort must be made to eliminate these difficulties; otherwise no firm public friendship can be attained. In questions of this kind, full and adequate publicity is extremely important. It has been general experience that the public is fair when it understands the entire problem, and it will bear with the management if convinced that some point about the water service which is not entirely satisfactory cannot be eliminated within the realm of reasonable economy.

Business is much agitated about the question of public relations. There are many individuals or concerns that purport to be able to solve public relations problems over night. This can't be done. This is not a criticism of the many reputable public relations counsels and advertising agencies that can bring to questions of this kind considerable experience and good judgment. In building public relationships, the check book is no substitute for personal effort. Good advice, yes, but hiring someone else to carry on activity that utility management should perform will draw from the public Priscilla's oft-quoted question, "Why don't you speak for yourself, John?"

Business and public utilities in particular have come a long way in solving this problem which can never be completely solved. It is largely a matter of attitude, a feeling which must come from within.

—From a paper presented by PHILIP B. NILES, Advertising Manager, American Water Works & Electric Co., Inc., before the New York State Section, American Water Works Association, at Poughkeepsie, N. Y.

New Water Plant in Fredonia, N. Y.

THE village of Fredonia in western New York has completed and is now using a new reservoir and dam, increasing its water-storage facilities from 90,000,000 to 348,000,000 gallons of water, and thereby meeting a long-felt need. At the same time a new aerator and a filtration plant have been completed to modernize the whole water system of the village.

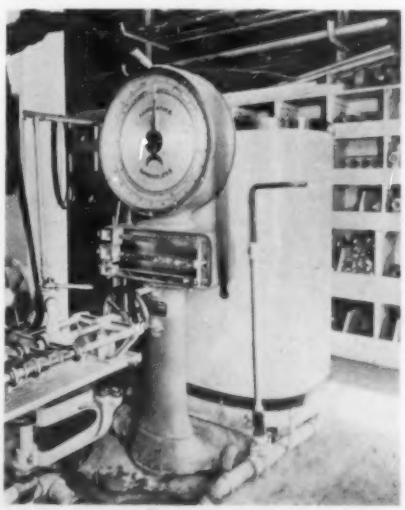
Work on the dam was started in January, 1937. The work on the reservoir and dam cost approximately $160,000, of which the village paid $69,000, raised by a bond issue. The aerator and filtration plant cost $34,000, of which the village paid $15,000. Practically the whole of the WPA expenditures on this undertaking were for labor taken from the relief rolls in the vicinity of Fredonia.

Human Errors Eliminated in Testing Water Meters

FOR testing water meters in Oklahoma City, the Water Department has installed a Fairbanks portable dial scale with a specially graduated chart. The inside circle on the chart is divided from 1 pound to 1,000 pounds, and the outside circle is graduated 120 gallons by 1 gallon units. At the 10-, 20-, 50- and 100-gallon points there is a percentage graduation of 10 per cent over and 10 per cent under. The tare bars are also graduated, the upper one 100 gallons by 1 gallon, the middle one 500 pounds by 5 pounds, and the lower bar is blank but has a 150-pound capacity.

This scale has a platform 30 inches square, with a large tank on it to receive the water running through the meters. The meters are calibrated in gallons, and it is not necessary to drain the tank before testing the next set of water meters, because the accumulated weight or gallonage is merely set off by use of the tare bar.

Since the installation of this special scale the Oklahoma City Water Works reports that not only have mistakes been entirely eliminated in the testing of meters, but the meters can now be tested as rapidly as they can be connected and the water run through them.



THE METER-TESTING OUTFIT IN THE OKLAHOMA CITY WATER DEPARTMENT SHOP

"LITTLEFORD" MEANS BETTER *Black Top* ROAD EQUIPMENT

BLACK TOP ROAD MAINTENANCE EQUIPMENT
LB
SINCE - 1900

LITTLEFORD

THE Littleford Trade-Mark is your assurance of the best in Black Top Road Equipment. For years, the Littleford Engineers have been first to bring about the new features that have become a standard part of all Black Top equipment. New practical features on Pressure Distributors, Kettles, and Utility Spray Tanks, etc., give buyers of this equipment a feeling of security when they invest in a Littleford Black Top Unit.

When you need a piece of Black Top Equipment, be sure it's a "Littleford" because it is engineered to do the job. For detailed information on Littleford units, write

LITTLEFORD BROS.

500 E. PEARL ST., CINCINNATI, O.

City Paving, Sidewalks and Improvements

BUILDING A 2,000,000-YARD DIKE AT WILKES-BARRE, PA., TO PROTECT FOUR MUNICIPALITIES FROM FLOODS

Seventy per cent of the material has already been placed by a fleet of diesel-powered shovels and tractors

New Patching Plant at Yonkers, N. Y.

LIKE many other municipalities, the city of Yonkers has been producing its own patching mixtures and, as is often the case, started this production on a small-scale basis which amply provided the requirements at the time. As the improvements of streets increased, the upkeep also increased and the existing equipment for producing mixtures for maintenance became outgrown.

Until recently the patching mixture was made in two small tilting gas-driven concrete mixers, each of which mixed only very small batches requiring a very extended mixing period, thus greatly limiting production and making it difficult to keep pace with the actual patching requirements. Consequently, specifications were drawn and bids asked, and a small but modern plant, capable of the necessary requirements for a long time in the future, was ordered. It is installed at the City Garage, Nepperhan Avenue.

No drying equipment is being used at the present time, since the mixtures produced are all of the cold type. The aggregate is furnished by a nearby quarry in as dry a state as possible, the aggregate containing moisture being stored and allowed to air dry. The dry aggregate is then fed into the boot of an enclosed elevator which elevates and discharges it into a revolving screen having four screening areas, thus making four sizes of aggregate—one size for each of four compartments of an overhead storage bin from which it is drawn through the conventional type draw-off gate into a weigh hopper. From the weigh hopper the material is discharged into the 1,000-pound capacity pug-mill mixer, where the asphalt is added, and after thorough mixing it is discharged into waiting trucks. The various units are driven by one electric motor.

Asphalt of the cut-back type is stored in a 1,500-gallon elevated tank, being charged directly from tank trucks, the tank being equipped with coils and connected to a low-pressure steam supply. From the tank the asphalt is drawn off by gravity and weighed in a bucket suspended from a dial scale.

The plant was furnished by Warren Brothers Roads Co., of Boston, and installed under its supervision with WPA labor for the Yonkers Public Works Department.

Street Improvements in Stamford, Conn.

IMPROVEMENTS to streets and highways in Stamford, Conn., by WPA projects include the reconstruction of 42,582 linear feet of gravel roads as well as the reconstruction of 10,650 linear feet of roadside shoulders. Also included is the paving of 34,075 linear feet of new gutters, as well as many hundreds of feet of roadside drainage, culvert installations, landscaping and other work closely related to road construction.

At the present time a rough woods road is being reconstructed, connecting Long Ridge Road and Hunting Ridge Road with a modern highway. This rehabilitated road, known as Wildwood Road, is the easterly continuation of the old Haight Street.

Projects of this type seem to meet with general public favor, but it is seldom that people will go to the trouble of expressing their pleasure as enthusiastically as residents in certain sections of Stamford have done. A notable example is a "round robin" letter of appreciation initiated by residents in Sterling Place, Springdale. Here a particularly poor dead-end road was reconstructed, with oil and gravel surface, wide cement sidewalks and concrete curbs.

Bituminous Mix for Sidewalks

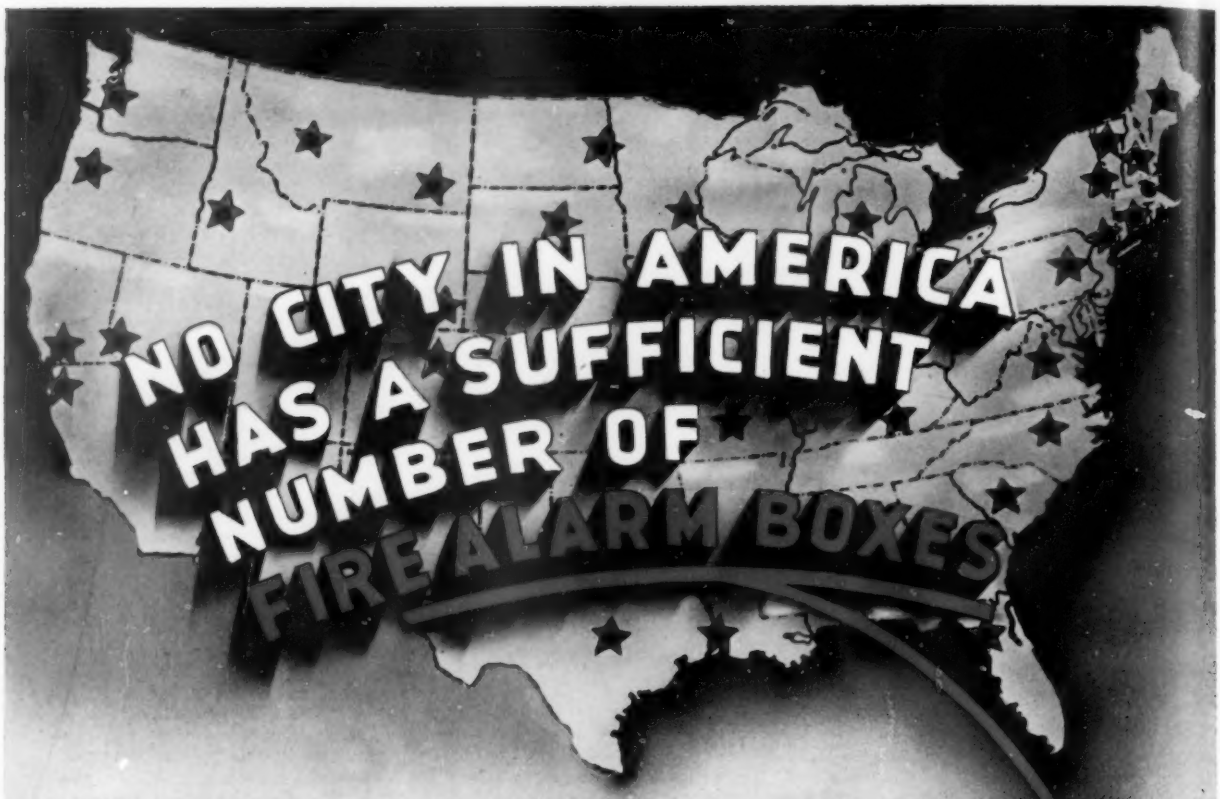
THE town of Darien, Conn., has been using a cold-laid bituminous mix for the past two years for sidewalk construction. The aggregate is a coarse sand, 40 per cent of which is retained on a ¾-inch screen, and MC-2 asphalt, using about 17 gallons of asphalt per cubic yard of aggregate. The aggregate and asphalt are mixed in a concrete mixer, and the material has been laid by hand, about 2 inches deep, and rolled with a hand roller. By using this method, it is found that it costs about 12½ cents per square foot, exclusive of preparing the subgrade for the walk.

Where the subsoil conditions are not favorable, from 2 to 3 inches of ¾-inch gravel is spread for a base before laying the bituminous material. The public seems to favor this type of sidewalk over the portland cement concrete walk, and of course the bituminous walk is much easier to repair.

During 1938 about 10,000 square feet of this type was laid and about the same area will be laid this year.

FUTURE TAXPAYERS AND CITY OFFICIALS INSPECT THE REBUILDING OF A BLACK TOP STREET IN KINGSTON BOROUGH, PA.

The No. 11 diesel Auto Patrol worked 9 hours a day on 1 gallon of fuel per hour. The street was first scarified. The photograph shows the blading of the material. This was followed by oiling and covering with chips



STARTLING, *but true*. . .

THE statement above, attributed to the United States Chamber of Commerce, confirms the findings of other eminent authorities on the subject of fire protection. Unnecessary fire losses result from the inadequate distribution of fire alarm boxes.

Fire alarm boxes should be located at all points of fire hazard within the community. *Visibility is also of extreme importance* —boxes should be installed on their own individual supports so that the citizens may become familiar with their purpose and locations.

Lower fire losses follow elimination of delay in transmitting alarms. Expenditures for properly planned fire alarm systems are profitable investments. The people who make the city—the taxpayers—should be acquainted with the facts.

Our facilities and three-quarters of a century of experience in planning fire alarm protection are freely available to all municipalities. Write for descriptive literature.

The GAMEWELL CO.

NEWTON UPPER FALLS, MASS.

Public Safety

Portland Merchants Like Parking Meters

PORTLAND has had a traffic problem that remained unsolved for years. Our streets, exceptionally narrow and without alleys, necessitate the loading and unloading of all merchandise on the curbs, with resulting congestion. After reading many reports from other cities which had installed parking meters, I was convinced that they would be a good thing for the business interests of downtown Portland.

My own experience in endeavoring to find a parking place, before the installation of parking meters, was that it was almost impossible at any time of the day to park within a reasonable distance of the center of town. This was also the experience of many customers and friends, and necessarily drove a lot of customers to outlying stores, especially to those advertising available parking space.

Since the advent of the parking meters, one can nearly always find space near his destination. I feel that the cost to the motorist of five cents for the parking privilege is a saving over the consumption of gas that would be used cruising around endeavoring to find a place to park, and I think that parking meters have successfully solved a problem in Portland.

S. K. ELLINGBOE,
J. C. Penny Co., Portland, Ore.

OUR firm is 10% per cent sold on the parking meters in Portland.

Since the meters were installed, we find that our customers have less difficulty in finding parking places near our store and we are of the opinion that there have been more shoppers in our place of business.

RICHARD MONTGOMERY,
Assistant Manager, The J. K. Gill Co., Portland, Ore.

I AM for parking meters 100 per cent. When we were considering parking meters for Portland, Ore., I went out of my way to visit and question the larger merchants of Dallas and Houston, Texas, and found them enthusiastic over the meters in those cities.

WILL KNIGHT,
Knight Shoe Co., Portland, Ore.

How Many People Has Your City Per Safety Device?

MILWAUKEE is such a traditionally safe and progressive city that what it considers adequate should be generally interesting. While the fact that a city of over half-a-million population operates 17,540 street-lighting units, may mean little to a municipality of one-tenth or one-hundredth that size, the fact that Milwaukee has 33 citizens per street-lighting unit offers a better measure. Here are the number of residents of Milwaukee per safety device:

For Each	Persons
Street-lighting unit	33
Mile of street lighted	893
Street-lighting circuit	2,015
Foot of underground cable	0.167
Foot of overhead street lighting wire	1.57
Automatic traffic signal	987
Fire-alarm location	425
Police-call location	524
Flashing police-call lamp	1,140
Traffic-marker	960
Street-car loading island	4,100
Safety island	3,820
Arterial stop sign	222
Reflector signal	680
Miscellaneous traffic sign	64
Mile of pavement markings	6,550

Fire Chiefs and Public Relations

PUBLIC relations as another weapon against the national fire loss has been pointed out to fire chiefs by L. W. Hutchins, Director of the Safety Research Institute. Mr. Hutchins, who is President of Sheldon, Morse, Hutchins & Easton, Inc., New York, said: "No matter what you do to spread the fire-prevention movement, you cannot do a comprehensive job without the active and intelligent cooperation of every householder and business man in your community. And you can gain this help only by mass appeals and educational work—in other words, by public relations methods. Fire-prevention work must be kept up all year round if it is to get anywhere."

8,500 *Lives Spared*

IN my opinion we police may rightfully take a great part of the credit for the reduced accident toll during the first 11 months of 1938—a reduction of 21 per cent from the toll of 1937, a record of 8,500 lives spared in 1938.

WILLIAM J. QUINN,
President, International Association of Chiefs of Police.

Police Picture Analyzes Accidents

A MOTION picture showing police departments how to help prevent traffic accidents by concentrating patrol on places where accidents of a particular type have occurred, has been produced by the Safety Division of the International Association of Chiefs of Police, in collaboration with the Northwestern University Traffic Safety Institute.

Evanston, Ill., and Detroit, Mich., which were the first two cities to put the system into practice, reduced fatal accidents 45 and 50% the first year.

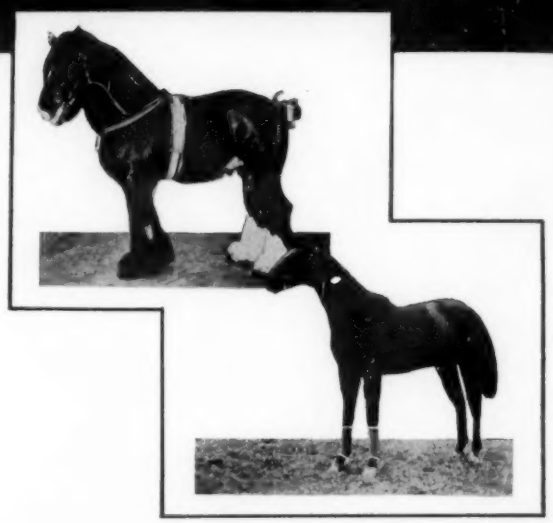
The film shows complete accident reporting and competent accident investigation, including the plotting of accidents on spot maps, each in a color representing a certain time of day. Traffic patrol districts are organized on the basis of these maps rather than according to population, area, or volume of traffic flow. Each officer is given detailed instructions as to violations to watch for.

Off The Record —By Ed Reed

"Those guys don't know it, but that's a false alarm!"

Courtesy of The Birmingham Post and The Register and Tribune Syndicate

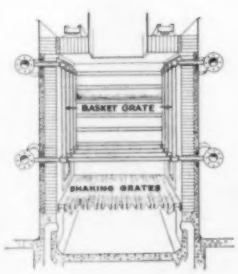
Size IS NOT EVERYTHING IN HORSES— OR IN GARBAGE INCINERATORS EITHER



A big, heavy, drafthorse has no chance in a mile race with a properly trained and thoroughly conditioned thoroughbred racehorse.

The same parallel holds good with garbage incinerators. The mere *bigness* of the grates, or of the incinerator itself and the building which "houses" it, do *not* determine its incinerating efficiency because a large portion of the conventional flat-grate type incinerators—sometimes as much as 33⅓%—is *useless* for burning purposes.

The Decarie Suspended Basket-Grate Incinerator was designed especially to save space, money and time in the destruction of refuse. It does this because its suspended grate allows drying and burning of the charge to take place simultaneously at the bottom and on all four sides of its basket-grate, thus assuring quicker, more complete incineration.



A Decarie Suspended Basket-Grate Garbage Incinerator solves the garbage disposal problem of any city quickly, satisfactorily, economically and with a minimum of space. Our engineers will be glad to cooperate with you in the solution of any garbage incineration problem.

NICHOLS

ENGINEERING & NERCO RESEARCH CORP.

60 WALL TOWER NEW YORK, N. Y.

Urban and Rural Health

Out-of-Town Cases of Typhoid Fever

ONE-QUARTER of New York City's cases of typhoid fever during 1937, according to an article in the *Quarterly Bulletin* of the New York Department of Health, were those of residents infected while out of town. For these 72 residents the out-of-town visit was disastrous. In the city they had been safeguarded at every point by a well-chlorinated public water supply, by a pasteurized milk supply, and by careful supervision of the known typhoid carriers. They spent their vacation in communities much less carefully guarded, and returned with a typhoid infection.

An example of this constant danger of infection is the outbreak last fall among guests at a summer hotel in the southern part of the Catskills. No less than 25 residents of New York City were infected; one patient died. In addition, there were at least three cases of typhoid fever among residents of other cities who were guests at this hotel.

Investigation by the New York State Department of Health pointed to the water supply as the source of this outbreak. Water of good sanitary quality from a drilled well was supplemented by water from a nearby brook which was subject to serious fecal pollution. The water from the two sources was pumped to a common tank and distributed to the hotel without chlorination.

This shows how important it is for smaller communities to make every effort to eliminate potential sources of typhoid infection within their boundaries, in order that no community in which summer visitors gather shall be the cause of epidemics in larger communities.

Health and Weeds

ON August 15 the hay fever season opened officially, and since then the health aspect of the weed-control problem has again been challenging the attention of cities throughout the country. In many cities street cleaning departments undertake the task of removing weeds from parks and other public property before ragweed pollen begins to scatter and blow through the air. At the same time a number of cities serve notice to private property owners to remove weeds from unimproved lots.

The thoroughness and efficiency with which cities remove weeds, and the delegation of responsibility for this work, vary widely. The responsibility often is loosely attached to the health, or street or public works department with the result that weed removal becomes nobody's job.

Of 83 cities which reported recently to the American Public Works Association, 37 said that their street cleaning departments removed the weeds from public property. A number of these pointed out that the weed-eradication season comes at a time when street cleaning is lightest, hence street department employees are available for the job. The remaining 46 reported that the job is being done by the health department or some other agency, or not at all.

Among the larger cities in which street cleaning departments are responsible for weed control are: Buffalo, N. Y.; Chicago, Ill.; Detroit, Mich.; Hartford, Conn.; Indianapolis, Ind.; Lincoln, Nebr.; Minneapolis, Minn.; Philadelphia, Pa.; Newport, R. I.; Seattle, Wash.; and Toledo, Ohio.

The cost of weed removal from street areas usually is met from general funds, although a few cities levy a special assessment against property owners.

New Measuring Rod for Health Services

THE American Public Health Association has issued a 200-page document, "Appraisal Form for Local Health Work." This is the result of studies in measuring community needs and community health activities by committees of the Association which have been engaged in this work for eighteen years.

The Appraisal Form is primarily a measuring rod for community health services. Through the use of a carefully arranged survey schedule, the principal health problems of the community are brought to light and defined. The program of community health service in the several fields is analyzed against this background of social and health conditions. The health services as performed are studied in relation to the need, with the result that the relative adequacy of public health work is judged with some consideration of the magnitude and type of local problems.

Heretofore the American Public Health Association has issued separate schedules for urban and rural work. Advances in rural health practice in the last few years have been so great that the Association believes that the issuing of separate schedules for the measurement of urban and rural health service tends to accentuate the differences in practice which are rapidly disappearing.

The Appraisal Form is divided into three major sections: a survey schedule for studying a community's health facilities; a schedule for appraising the local health activities; and a list of significant health indices. The Association urges the use of the Appraisal Form by health workers and health departments to evaluate periodically and impersonally their public health programs and determine the fields in which change of emphasis may be needed for more effective work. Complete information regarding the Appraisal Form may be secured direct from the American Public Health Association, 50 West 50th Street, New York.

Ill-Health in Cities and Rural Sections

THERE have been a great many discussions as to whether it is healthier to live in the city or in the country, and now a report by Harold F. Dorn, Statistician, U. S. Public Health Service, published in *Public Health Reports*, Vol. 53, No. 28, gives a reasonable answer with a statistical foundation.

Mr. Dorn says that the widespread adoption of modern principles of sanitation and the application of recent discoveries in preventive and therapeutic medicine have given rise to the belief that the health of urban residents is now as good as or even better than the health of persons living in the country. This is contrary to the former belief that cities were "the graves of humanity."

Although mortality rates have decreased more rapidly in urban than in rural areas since 1900, rural males subject to the mortality conditions of 1900 had a greater expectation of life at all ages over one year than did urban males in 1930. The difference between females is less, but even so, white women between 30 and 80 years of age living in urban communities in 1930 could not expect to live as many years as rural women of the same ages in 1900.

A comparison of case rates of nonfatal illness in different-sized communities shows that the lowest rates occur among people living in the open country and in the large cities of 100,000 or more population. The rates for both total and disabling cases of illness are slightly but not significantly lower among people living in the open country than among people living in the large cities.

Case rates are appreciably higher among people living in cities of less than 100,000 population and in small towns and villages than among people living in the open country and in large cities.

The distribution of incidence of mental illness is, in general, similar to that of physical illness. In New York State, where hospital facilities for mental disease are fairly adequate, the rate of first admissions is about 66 per cent higher for urban than for rural residents. Although there are some irregularities, the rate is higher in the large than in small cities.

Regardless of the way in which illhealth is measured, rural residents possess definite advantages over urban residents. For a few diseases, the superior medical and health facilities and services available to city dwellers have partially compensated for unhealthful environmental conditions. This is especially true for the communicable diseases and those causing infant deaths. However, for most causes of illness, especially fatal illness, rural residents still have definitely lower rates than urban residents in spite of the superior medical facilities available to the latter.

NOTHING TAKES THE PLACE OF CAST IRON PIPE

THE LEVER and fulcrum as an engineering principle—cast iron pipe as a long-lived material for underground mains—nothing has taken their place for centuries. Yet both have been highly developed in design and efficiency.

If you demand *proved* long life and low maintenance cost that result from effective resistance to corrosion—assured safety margins for impact, beam load and crushing stresses—and permanently tight joints—then you will agree that *nothing takes the place of cast iron pipe.* Some materials meet some of these requirements but only cast iron pipe meets them all.

THE STANDARD MATERIAL FOR UNDERGROUND MAINS

An installation of cast iron pipe at Baltimore for a water main that need not see the light of day again for a century. Many cities have original cast iron water mains in service that were laid more than 100 years ago.

Look for the "Q-Check" registered trade mark.
Cast iron pipe is made in diameters from 1¼ to 84 inches.

THE CAST IRON PIPE RESEARCH ASSOCIATION, THOMAS F. WOLFE, RESEARCH ENGINEER, 1015 PEOPLES GAS BUILDING, CHICAGO, ILLINOIS

JANUARY, 1939

Vol. LIV, No. 1

The American City

470 Fourth Avenue
New York

35 Cents, $2 a Year

Balancing Demands for Municipal Services Against Available Resources

THAT the answer to this problem is far more difficult than mere "budget balancing," is pointed out by the Municipal Finance Officers' Association of the United States and Canada in a study by its Committee on Local Government and Revenues, just published.*

As an illustration of budget balancing by curtailing expenditures in keeping with falling revenues, the study asserts:

"If street lights are extinguished highways become a haven for criminal activity and reckless driving. If garbage and trash are collected less frequently, or not at all, disease is encouraged. If street repairs are postponed, expensive pavements may be ruined long before their bonds are retired. If the police force is cut, the policemen are farther away when crimes are committed. If the fire force is diminished, fires are given a start and then have fewer fighters to combat them.

"Such conditions cost the taxpayer money and they may cost him his life. Thus the dollars of income and outgo may be balanced, yet the need for services be unsatisfied."

Although many local governments have attempted to solve their financial difficulties by drastically curtailing services or haphazardly seeking new revenues, the only satisfactory solution requires broader treatment, the study declares. Not only must local governments cooperate to solve their problems, but state and Federal governments must lend their support.

THE PROBLEM

Is it possible to bring into balance the demand for local services and the financial resources available to carry them out, and do so within the present framework of democratic local self-government?

Course of Action Proposed

Suggestions as to a course of action which localities can follow in helping their financial situation include more effective expenditure of funds by obtaining good administrative organization and qualified personnel, the adoption of practices which have proved the most efficient,† and the use of long-term and immediate planning. Such a program would include the appointment of administrative officers through civil service, and the practice of centralized accounting, purchasing and budgeting.

The study proposes also that public hearings be held to determine the desires of the people if curtailment of local government services seems necessary. Other suggestions include a further utilization of existing revenue sources, the expansion of local revenue powers, and the acquirement of additional revenues from the state through tax sharing and grants-in-aid.

As an example of state cooperation in the proposed program, the study suggests that states refrain from demanding local expenditures or additional local services without providing adequate financial support for them. States should also avoid weakening the property tax by adopting tax limitation laws, it is asserted.

The study suggests that the Federal Government take the initiative in the appointment of a commission to study the financial relationship between local, state and Federal units.

Meanwhile, it is pointed out, the difficulties for local governments have increased as the result of the population trend which has concentrated a steadily increasing number of persons in urban areas, and the expansion of local government services. As an illustration of this expansion of services, the study points out that:

"Municipalities today combat crimes by equipping police departments with two-way radio communication, scientific crime laboratories, and modern record systems. Traffic problems are being solved by the use of mechanical devices, scientific accident investigation, education, traffic engineering, and compulsory motor-vehicle inspection. Health work has been developed to the point where enlightened and extensive treatment of venereal disease is an everyday activity. Inspection services designed to protect the public are expanding."

In addition to this expansion of services over the past century, local governments have faced a serious handicap by the addition of "must" expenditures required by statutes or constitutions, over which budget authorities have no control, the study continued. As an example, the cost of education is usually fixed independently by boards of education. "Welfare expenditures are frequently required by

* See page 95 of this issue.

† The report discusses in some detail desirable administrative procedures in accounting, budgeting, and purchasing. (As to the last mentioned, see page 5 of this issue.)

TABLE I. NET PER CAPITA EXPENDITURES OF CITIES OVER 100,000, BY FUNCTION, 1915-1936

FUNCTION	Years 1915	1929	1936	Per Cent Distribution of Total Increase 1915-1929	1915-1936	Per Cent Increase Per Capita 1915-1929
General Government	$ 2.41	$ 4.09	$ 3.99	5.1	4.4	69.7
Protection to Persons and Property	4.47	9.07	8.43	14.0	11.0	102.9
Health	.45	1.18	1.16	2.2	2.0	162.2
Sanitation	1.61	3.53	2.59	5.9	2.8	119.2
Highways	2.24	3.99	2.89	5.3	1.8	78.1
Charities, Hospitals and Corrections	1.50	3.16	9.73	5.1	23.0	110.6
Education and Libraries	6.09	17.02	15.75	33.3	27.0	179.5
Recreation	.79	1.68	1.39	2.7	1.7	112.7
Miscellaneous[a]	.65	2.54	2.91	5.7	6.3	290.8
Public Service	1.44	3.92	3.81	7.6	6.7	172.2
Interest	4.66	8.97	9.40	13.1	13.3	94.6
TOTAL	$26.31	$59.15	$62.05	100.0	100.0	124.8

[a]Included in this category are expenditures for: 1. Pensions and gratuities; 2. Aid to special classes such as soldiers and sailors, and mothers; 3. Administration of public trust funds and investments; 4. Judgments and losses; and 5. Unclassified purposes.

TABLE II. NET EXPENDITURES PAYABLE FROM FEDERAL, STATE AND LOCAL REVENUES FOR 1920, 1925, 1930 AND 1935[a]

Level of Government	1920 Millions of Dollars	1920 Per Cent of Total	1925 Millions of Dollars	1925 Per Cent of Total	1930 Millions of Dollars	1930 Per Cent of Total	1935 Millions of Dollars	1935 Per Cent of Total
Federal	6,041	58.9	3,518	33.3	3,792	28.8	7,272	48.6
State	861	8.4	1,443	13.7	2,134	16.3	2,222	14.9
Local	3,344	32.7	5,584	53.0	7,217	54.9	5,459	36.5
TOTAL	10,246	100.0	10,545	100.0	13,152	100.0	14,953	100.0

[a]Two other figures should be mentioned, but should not be included in the table, since they are only approximate. In 1915 expenditures for local governments amounted to something over $2,200,000,000, which was more than 60 per cent of the total governmental expenditures. These figures are taken from C. H. Woody, "Government's Functions," *Recent Social Trends*, Washington, 1933, p. 1324.

laws specifying adequate care of dependents," without specifying the amount to be spent, and state laws frequently fix the compensation for local offices.

Weakening of Property Tax Adds Complications

The local revenue problem is further complicated, the study declares, by recent weakening of the property tax, which serves as the bulwark of the local tax system. "Not only has the effectiveness of tax collections been disturbed, but the base and limit of this tax have been narrowed in many cases. It is well agreed that prompt and vigorous enforcement is the very heart of effective tax collection. But with the increased tax delinquency of recent years there has been a mad scramble to reduce tax burdens at any cost.

"Little attention has been paid to the morale of prompt taxpayers, while every opportunity to continue delinquent, without distinction as to their real needs, has been extended to delinquent taxpayers." All except three states have granted some type of moratoria on property taxes, it is pointed out.

The committee found that "tax exemptions have also sapped the strength of the property tax." Fourteen states allow homestead exemptions or preferential rates on homesteads, while a number of other states are considering similar measures.

The study also attributes a portion of local financial difficulty to a conflict in tax systems of local, state and Federal governments. In some cases all levels of government use some of the same forms of taxation, such as gasoline, liquor and cigarette taxes. In many others both local and state governments depend on the same tax revenue sources. Because local governments have no inherent powers but only those delegated to them by states, they are frequently restricted from utilizing the sources of tax revenue necessary to finance activities, the study said.

Finding New or Added Sources of Local Revenues

Pointing out that many municipalities can increase their revenues, "if such an increase is necessary and if they make the effort," this report of the Municipal Finance Officers' Association discusses methods of accomplishment:

1. If new or additional sources of municipal revenue are to be found, certainly present revenue powers should be utilized fully. This can be done if municipalities:

(a) Determine what revenue sources, not utilized locally, are producing revenue elsewhere.

(b) Find out which of the sources, not being used locally,

TABLE III. ESTIMATED COST OF SOCIAL SECURITY ACT 1937-40

	1937 Millions of Dollars	1938 Millions of Dollars	1939 Millions of Dollars	1940 Millions of Dollars	Per Cent Increase 1937-1940
Falling on Federal Revenues	291	363	444	516	77
Falling on State and Local General Revenues	266	338	421	495	86
Falling on Special Taxes	434	1,416	1,439	1,800	314
TOTAL, ALL SOURCES	991[a]	2,117	2,304	2,811	184

[a]Six months.

TABLE IV. TREND OF TAX DELINQUENCY 1930-1937
Median Year End Delinquency 150 Cities Over 50,000 Population

Years	Per Cent	Years	Per Cent
1930	10.15	1934	23.05
1931	14.60	1935	18.00
1932	19.95	1936	13.90
1933	26.35	1937	11.30

TABLE V. DECREASES IN PROPERTY TAX LEVIES ATTRIBUTABLE SOLELY TO TAX LIMITATION IN SEVEN STATES, 1932 TO 1935
(In Thousands of Dollars)

	1932	1933	1934	1935
Indiana	12,144	1,867	9,920	5,541
Michigan	———	33,360	30,181	37,870
New Mexico	———	———	2,402	2,046
Ohio	———	———	28,917	[a]
Oklahoma	———	———	15,431	11,992
Washington	———	8,635	12,412	19,286
West Virginia[a]	———	16,763	16,568	16,828
TOTAL	12,144	60,625	115,831	[a]

[a]Not available.

TABLE VI. SOURCES OF LOCAL REVENUE FOR SELECTED YEARS, 1902-1935
(In Per Cent)

	1902	1912	1925	1928	1932	1933	1934	1935
Local Revenue[a]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
From State: Total	9.9	8.2	12.9	13.1	14.5	16.9	15.2	16.5
Shared Taxes	2.3	2.2	4.7	5.4	4.6	5.1	4.3	4.5
Grants-in-Aid	7.6	6.0	8.2	7.7	9.9	11.8	10.9	12.0
From Federal Government[b]	———	———	———	———	———	1.1	22.4	24.5
From Local Taxes	90.1	91.8	87.1	86.9	85.5	82.1	62.4	59.0

[a]Including grants-in-aid and state shared taxes, but excluding local non-tax revenues.

[b]Relief Grants. Other federal money eventually reaching the local units is included in state aid.

are legally available.

(c) Choose those sources for tapping which are found to be legally available and are feasible.

(d) Tap those sources which have been chosen to provide additional revenues.

2. If present revenue powers cannot be made to furnish adequate financial support, then local government must fight to expand them.

3. Local government should seek a justified share of state-collected taxes, and adequate grants-in-aid which do not require additional local expenditures.

What the State and Federal Governments Might Do

If the states desire to constructively aid local government, there are many things they can do. Most important of these, as outlined in the report, are:

1. Refrain from requiring mandatory local expenditures or encouraging additional local services without providing adequate financial support for them.
2. Avoid weakening the property tax by adopting or facilitating the adoption of exemptions or limitations.
3. Do not usurp local revenue sources.
4. Facilitate a more effective utilization of present local revenue sources.
5. Assist local government in making expenditures more effectively.
6. Expand local revenue powers by making statutory changes or facilitating constitutional revisions.
7. Make available to local government a justified share of state-collected taxes.
8. Provide adequate grants-in-aid without requiring added local expenditure.
9. Set up a group representing all interested parties to make a detailed study of both state and local activities and revenues.

The report also recommends that the Federal Government appoint a group representing all interested parties to determine what relationships should exist among the three levels of government, and concludes with the warning that "unless the upper levels of government give intelligent consideration to local difficulties, local self-government may become a term of only historical significance."

Charles J. Fox, City Auditor of Boston, Mass., served as Chairman of the committee which made the study. The other members were: Vice-Chairman, D. C. Miller, City Comptroller, Memphis, Tenn.; Ferrell H. Adams, Salt Lake County Auditor, Salt Lake City, Utah; William T. Canan, City Controller, Altoona, Pa.; J. N. Daley, City Controller, Detroit, Mich.; A. E. Fuller, Director of Finance and City Manager, Miami, Fla.; Mrs. Louise Huff, City Auditor, Colorado Springs, Colo.; Cecil J. Marlowe, City Controller, New Haven, Conn.; Frank D. Peterson, Director of Accounts and Control, State Department of Finance, Frankfort, Ky.; L. Roberage, Director of Finance, Montreal, Can.; Harry D. Ross, Chief Assistant Controller, San Francisco, Calif.; E. T. Sampson, City Clerk-Treasurer, Outremont, Quebec, Can.; T. R. Sargeant, Town Treasurer, Belleville, N. J.; Charles E. Stenicka, City Comptroller, Omaha, Nebr.; R. B. Upham, City Comptroller, Chicago, Ill.; and William H. Wendt, City Comptroller, Milwaukee, Wis.

The committee was assisted by Carl H. Chatters, Executive Director of the Municipal Finance Officers Association, and Matthias E. Lukens of MFOA's Research Staff.

Clearing Streets in Chicopee, Mass.

Trucks Speeded Opening for Traffic After the Hurricane in September, 1938

THE September, 1938, hurricane in New England blew over more than 500 large shade trees in the city of Chicopee, and presented to the municipal authorities the difficult problem of removing the stumps after the tops of the trees had been sawed off and hauled away. An ingenious method of removal, shown in the illustration, made use of equipment that was already available. Trucks, owned by the Chicopee Sand & Gravel Co., were engaged for this special purpose. The Autocar truck shown is an ordinary dump model of 5 tons capacity which had seen about three years' service.

The 7-ton stumps were first loosened by digging around them. Then the truck yanked them out of the holes by straight pulling. The body of the truck was then raised and backed close against the stump. A 30-foot chain was fastened around the stump in such a way that when the body was lowered the stump would bind against the tail-gate and lift up enough to clear the ground so that it could be hauled away in that position. It was necessary to weigh down the front of the truck with about 5 tons of ballast and, in addition, with some ten or twelve men at times, in order to get leverage enough to lower the body and pick up the stump. By this simple method, the Street Department was able to remove the 500 stumps which, by more usual methods, would have required a splitting operation for which dynamite or blasting powder is often used and which might have been undesirable in the thickly populated area.

—Photograph and information furnished by Tad S. Chmura of Chicopee, Mass., through the courtesy of Robert F. Wood, Advertising Manager, The Autocar Co.

ONE OF THE BIG STUMPS LASHED TO THE TAIL-GATE OF A TRUCK READY FOR HAULING AWAY

Handling Complaints

A Simple System Makes Sure All Kicks Are Settled Promptly, Courteously and Completely

By G. E. WRIGHT
City Engineer and Superintendent of Public Works, Corning, N. Y.

ONE of the most frequent criticisms of municipal officials is that they do not pay any attention to complaints and trouble reports. One of the causes of this criticism is that complaints received by a clerk or employee of the department are not passed on to the proper person or are transmitted verbally and forgotten. When the writer was appointed to office in 1936, one of his early acts was to install a definite method of handling such complaints.

Form W32, a numbered form shown on page 39, was designed for use by the clerks in the Department of Public Works office whose duty it was to answer the telephone and meet people calling at the office.

Using the Form

For the information of all concerned, the one making the complaint is asked the location of the condition complained about, and this is recorded on Such and Such a street from So and So to So and So. The time and date are noted either by hand or by a time stamp in the square at the upper left.

The nature of the action is checked, whether an accident, an order from the Mayor or Council, a request, a complaint or a trouble report, in the small square following the proper designation. The name of the person making the complaint, his address and telephone number are recorded. By checking the small square at the right, it is recorded whether this person is a city official, a city department head, a city employee, a D.P.W. employee, a fireman, a policeman, or a citizen not connected with the city administration. Another set of small squares when checked denote in what way the complaint is made—by letter, by telephone, by another person, or by the person himself.

A full statement of the matter, quoting the complainant where feasible, occupies the middle portion of the page. The one who receives the complaint signs it and notes his disposition of the matter in the space below. If his action completes all that is necessary, he answers the question, "Does this close the matter?" in the affirmative and the file is marked closed. Otherwise the matter is referred to another person or department, and this fact is noted. The person to whom the matter has been referred makes a complete statement of his findings, doings and disposition of the matter.

When a Work Order Is Needed

If it is something which requires work by the Water Department, Street Department, Sewer Department or any other D.P.W. branch, a work order (Form W33) is made in duplicate, the original white and the carbon pink. The original white copy is sent into the field and the pink copy is kept in the office, so that if there is an undue delay or the foreman has lost or damaged the original, a follow-up can be made from the office copy.

In case a compelling order has been issued to a property owner to make certain repairs and he has failed to do so and the work order is for doing that work, this fact is noted by recording the notice number. If the owner, upon receipt of a notice, wishes the D.P.W. to proceed with the work at his expense, a work agreement is made out and this fact is noted by recording the work agreement number. If the work covered by this order is in conjunction with or supplements that covered by a previous order, the previous order number is noted. This condition exists where a water service is installed for an owner by the Water Department and later the pavement is replaced by the Street Department. The owner pays for both of these operations. A complete statement of work to be done, with sketches and all other necessary instructions to the foreman, is made below.

In many cases, the exact nature of the trouble is not known when the work order is made out; therefore, the foreman is required to state, on the work order, the conditions found and what he did, so that there is a clear and complete record of what has been done and by whom, from the time the complaint is received until the matter is finally closed.

If the work requires opening the street or sidewalk paving, the foreman checks the pertinent squares, showing whether it is black top, brick or concrete pavement or whether it is black top, brick or concrete sidewalk, and the date the backfill was replaced, so that a 30-day settling period can be allowed before replacing the road metal.

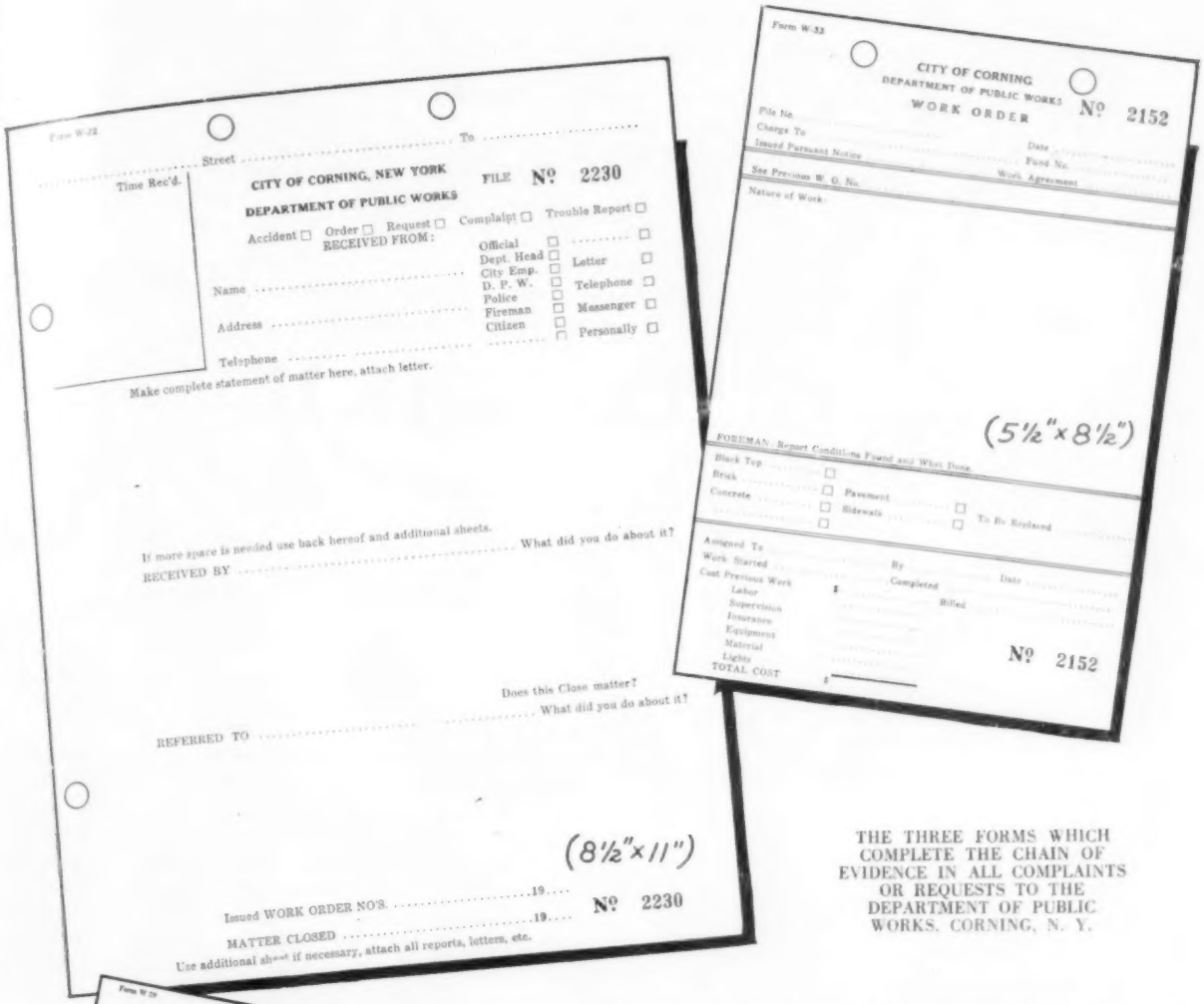
When the work order is sent out, the foreman or mechanic to whom the work is assigned is noted as well as the initials of the individual issuing the order, and the date it was given to the foreman.

The foreman notes the date and time the job is started and completed. When it is completed, he turns in the work order, and the office clerk completes the information as to cost of the work, etc.

Further Office Records

To furnish the office with a complete record of labor, equipment, time, materials and supplies for each work order, a "Foreman's Daily Report," Form W29, is used for each work order.

So that the time clerk will have a good check on whether the foreman has charged the right job, with labor, etc.,



THE THREE FORMS WHICH COMPLETE THE CHAIN OF EVIDENCE IN ALL COMPLAINTS OR REQUESTS TO THE DEPARTMENT OF PUBLIC WORKS, CORNING, N. Y.

shown on the report, spaces are provided for the foreman to show the nature of the work performed, the work order number and the location of the work as well as his name, the day of the week and date. It frequently happens that the latter two do not correspond. Then the time clerk can call in the foreman and find out which is correct.

When the job is completed, the time clerk assembles all the daily reports and computes the cost of labor, supervision, insurance, equipment charges, material used, cost of maintaining lights, etc., and notes it on the bottom of the work order. If the work is supplemental to previous work as indicated above on the work order, the previous work order is referred to and the cost of its work added to obtain the total cost of the project.

If the work has been done for a taxpayer or owner, it is billed and the date of the billing noted.

The work order is then turned over to the one issuing it, and he notes that the matter is closed, on the original file, if there are no further complications; otherwise the file is held until all matters concerning the original complaint are disposed of.

Protection Through Records

The complaint files are filed by location of the trouble or matter, and the work orders are filed numerically; all foreman's reports, sketches, etc., are kept with the pink

copy of the work order. The white copy of the work order is filed with the complaint form, together with all letters, sketches, and other pertinent papers.

By this system it has been possible to trace back over matters that would have been completely forgotten or their details so hazily remembered that no intelligent reply to a question or new complaint could have been made.

Many times the writer has been saved from being unjustly criticized by his being able to show the accuser a clear and authentic step-by-step record of just what happened. And this was accomplished to the entire satisfaction of the citizen without creating ill feeling.

By insisting that every number on the complaint forms and work orders be accounted for periodically, it is assured that no items are lost.

I believe that this system has had more to do with the building-up and maintaining of a cordial relation with the public than any other one factor of the Department.

Water Gas Tar for Road-Mix on City Streets in Florida

Fort Myers Has a Program of Economical Improvement of Old Streets

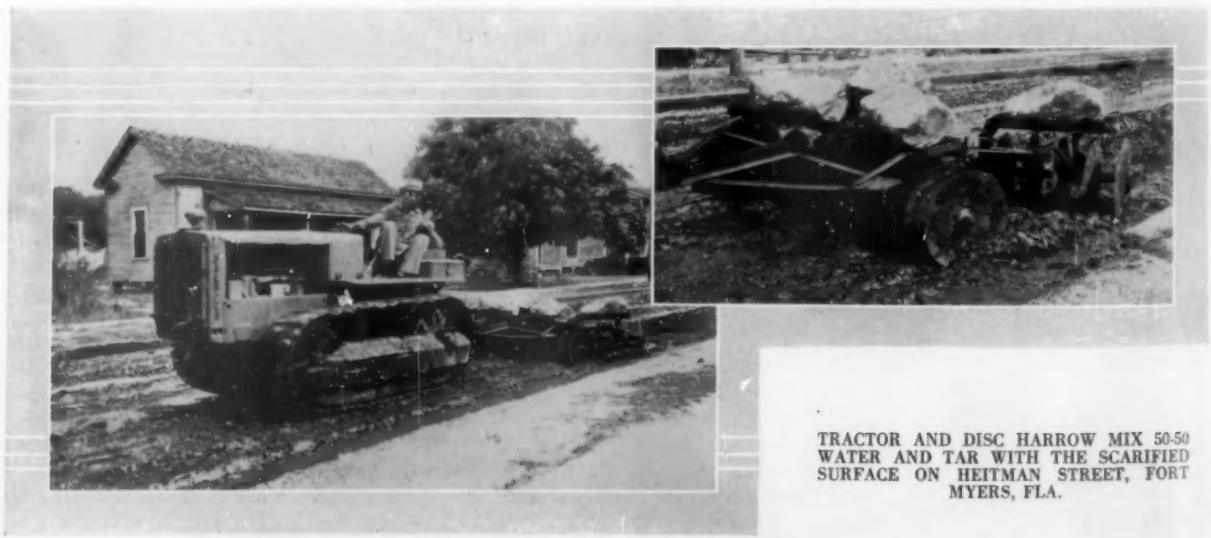
THE use of waste raw-water gas tar from the municipal gas plant has developed into a regular program of street improvement in Fort Myers, Fla., under the direction of Fred Lowdermilk, Superintendent of Public Works, whose background of state highway and materials testing work has made possible the development of this type of surfacing. Final sealing of the tar-bound street with an asphalt macadam binder produces an all-year dustless street that does not require re-treatment for at least three years.

Typical Work on Heitman Street

During the spring of 1938 a typical 1,440-foot project was carried on by this method on Heitman Street near the center of Fort Myers. Many years ago a shell base was laid on this street and surface-treated with asphalt. The street is 24 feet wide between concrete curbs. The street had gone completely to pot-holes and was exceedingly dusty in the dry season. About a year ago the street was given 1 gallon per square yard of the raw-water gas tar to penetrate it and temporarily lay the dust. It bound the surface for about three months only.

This street was then placed on the resurfacing program and scarified to a depth of 6 inches and shot with 1¼ gallons per square yard of the tar mixed 50-50 with water and distributed rather unevenly with the city's old discarded water wagon. This was cut and mixed with disks and bladed and windrowed to the two sides, and the portion between the windrows was shot and mixed in a similar manner and bladed to the two sides. The two windrows at each side were then cut together with the disks until thoroughly mixed and then shot with two applications of 0.5-gallon each of dehydrated tar and thoroughly disked to a uniform mixture. Until this time traffic was permitted to use the street at will, but after the dehydrated tar was applied and mixed and the street shaped it was closed to traffic for 24 hours. Then traffic was allowed on the street to complete the compaction of the surface for a period of a month before the application of 0.3-gallon per square yard of macadam binder asphalt. Mr. Lowdermilk emphasized the statement that this type of road will not stand up unless an asphalt seal is applied to retain the binding elements of the raw tar.

Another point stressed during the interview is the absolute necessity of adequate drainage to insure long life for mixed-in-place pavements. This is the one disadvantage in using mixed-in-place paving in municipalities.



TRACTOR AND DISC HARROW MIX 50-50 WATER AND TAR WITH THE SCARIFIED SURFACE ON HEITMAN STREET, FORT MYERS, FLA.

Rehabilitation of Water Supplies After the New England Hurricane

State Health Departments Report and Suggest Precautions in Reconstruction

THE West Indian hurricane which struck the New England coast on September 21, 1938, and spent its fury on the Connecticut Valley, and the four days of rain preceding it, caused unprecedented damage to the water supplies of the district. The Willimantic, Conn., supply and how it was brought back into service was described in the November issue of THE AMERICAN CITY, and in December appeared an article on the efforts of the water utility at Bristol, R. I.—examples of the heroic endeavors and ingenuity of the operators in overcoming untold handicaps.

Other Individual Reports

At the New England Water Works Association meeting in November a number of water-works superintendents reported on the troubles they had experienced. The Milford Water Co., Milford, Mass., uses diesel engines. At the time of the 1936 flood the electrically driven air compressor went out, so that it was impossible to start the Worthington diesel. Now a small gas engine is used to drive the air compressor. It was pointed out that if the 1936 flood had happened in winter, the plant would have been frozen. Mr. Goff suggested that a thawing machine with a 7,500-watt generator driven by a Ford V-8 motor could well be used to heat a station which lacked other heat in winter. Heat exchange boilers are now available for using the exhaust gases from internal-combustion engines for heating a plant.

At East Brookfield, Mass., the water is furnished by a dug well adjacent to a large lake. Owing to the heavy rains immediately preceding the hurricane, the dams at two lakes above the pumping plant went out, and the resulting flood took out a section of the state highway, washed out a fill on the Boston & Albany Railroad, and broke the water main, and all the water drained out of the system, leaving the standpipe on a hill unballasted so that it blew over at the height of the hurricane. The top 30 feet of the 50-foot tank was cut off by oxy-acetylene flame and the tank righted and put back into service. The city of Boston sent out a fire pumper to replace the well pump until the motor could be dried out.

At New London, Conn., which bore the brunt of the hurricane and was also visited by a bad fire, the pressure in the mains went down to 4 pounds at the time the maximum number of pumpers were working on the system. It required two additional days of continuous pumping to bring the pressure back to normal.

At Chicopee, Mass., the bridge across the river from East Chicopee into Chicopee was carried away, and the main line from the reservoir to the plant was washed out. To keep the plant in service, an old reservoir with a poorer quality of water was brought into use temporarily. The city of Chicopee was supplied with water from Springfield and Holyoke during the emergency.

At New Bedford the 24-hour demand immediately following the hurricane and tidal wave was 18,000,000 gallons, against a normal maximum of 10,000,000 gallons. This unusual demand was caused by the breaking of sprinkler risers in buildings which were moved by the tidal wave, or risers which were struck and broken by floating timber.

One city which had an impounding reservoir at some distance from the business section was unable to get through to the reservoir by automobile or on horseback, because the timber for miles around was blown into a tangled mass by the force of the wind. All the wires for the remote recording water-level recorders were blown down by the storm. The city immediately ordered 15,000 feet of underground cable, which will be used to serve its water-level recorders in the future.

The Hurricane and Flood in Connecticut

Warren J. Scott, Director, Bureau of Sanitary Engineering, State Department of Health of Connecticut, reports that Connecticut suffered a major disaster with irreparable loss of life and property. However, prompt steps were undertaken to prevent disastrous effects on the public health. The cooperation of local health authorities and the public aided greatly. Following rather closely upon the 1936 flood, the disaster of September, 1938, was unprecedented. After a summer of high rainfall, rain fell for several days and culminated in a series of extensive floods in many river valleys. On September 20 occurred the first damage to public water-supply dams. The next day saw the destructive windstorm that wrought widespread havoc, and with this came the tidal wave that wiped out many summer colonies, damaged a great amount of property and caused considerable loss of life.

All things considered, according to Mr. Scott, Connecticut's public water supplies stood the test well. On September 20 flood waters caused a highway cave-in and a broken main on the Cold Brook supply of East Hartford. The break was promptly repaired, but because of the increased draft from the Salmon Brook system the State Department of Health installed an emergency chlorinator. A dam on the upper Salmon Brook reservoir in East Hartford burst, but no serious damage resulted. The same day the dam of the South Glastonbury Water Co. was washed away, but a connection was rapidly made to the East Hartford system.

On September 23 the Department installed an emergency chlorinator on the well supply of the North Canaan Water Co., where an auxiliary flooded well supply had to be pressed into use because of the broken main from the reservoir. Loss of power crippled the New London chlorination plant, and a Department sanitary engineer supervised the installation of an emergency chlorinator with

the aid of an engineer sent to Connecticut by the manufacturers.

During the entire emergency the Department had two sanitary engineers in eastern Connecticut going from one water supply to another to check up on conditions. Where any questionable conditions were found, notices to boil the water were issued by the health authorities and the utility managements. Two well supplies in eastern Connecticut villages were flooded, and were disinfected. In Cromwell and on the Guilford-Chester Water Co. system trouble developed with chlorination. The Cromwell chlorinator had to be repaired, and on both systems standpipes were disinfected. On the Roaring Brook supply in Manchester, an emergency chlorinator was installed by Wallace & Tiernan because of the crippling of the treatment plant due to loss of power.

Loss of power caused temporary interruption of service on a number of pumped supplies, but, owing to prompt and efficient work by water-works managements and electric utility companies, service was restored in surprisingly short time. On many systems pumped water in storage tided over the emergency.

On three supplies filtration plants were temporarily bypassed, but chlorination was kept in service. In all, ten water supplies for municipalities and two state institutional supplies were forced to demand immediate attention from sanitary engineers of the State Department of Health.

Many private wells were flooded by high river water and by other surface wash. To warn against polluted water supplies, a bulletin, "Cleaning Up and Disinfection After Floods," was issued first in mimeographed form and then printed. This described the manner of disinfecting wells, and was taken by Department engineers and other members of the professional staff assigned to emergency service and distributed, from September 21 to September 25, to all health officers in the flood areas.

Effects in Rhode Island

James J. Dillon, Sanitary Engineer and Chemist, Rhode Island Department of Public Health, reported that all 41 of the water works in Rhode Island were seriously affected in one way or another by the storm; in fact, all 41 depended on electric power and were without power for a considerable period after the storm. Leaks in the distribution system were caused by falling trees and buildings. In East Greenwich and the Pawtuxet Valley it was not possible to supply the higher levels of the two areas, although the pumping was at twice the normal rate.

A number of reservoirs were lost through failure of the dams or dikes, and in the case of Bristol the reservoir was flooded with salt water, making it impossible to use the water for drinking or for boiler purposes. Many of the purification plants were flooded by high rivers, putting them completely out of service. The filter-runs in many of the plants, when they were able to start operating again, were greatly reduced by the increased load of turbid water caused by the churning of the shallow reservoirs by the high wind. Plants with normal long filter-runs were reduced to 1½ hours.

There were increased chlorine demands throughout all the plants when they were placed in service again. As a safety measure, higher residuals were maintained on all systems.

Damage in Massachusetts

Joseph C. Knox, Assistant Sanitary Engineer, Massachusetts Department of Public Health, reported that for the month of September, when the normal rainfall in Massachusetts is 3.6 inches, the actual rainfall in 1938 was 9 inches, with 15.7 inches recorded on the Chicopee River drainage area, of which 12½ inches fell in the 5-day period from September 17 to September 21. Barre reported a total of 19.6 inches for the month, 17 inches of this falling during the 5-day period of the storm. The peak flow of the Ware River at Coldbrook was 14,000 cubic feet per second, as compared with 6,000 cubic feet per second during the 1936 flood.

Mr. Knox pointed out that the last comparable hurricane was in 1815, 123 years ago, but one cannot be sure that the next one will be postponed for an equal length of time. The 1936 flood proved good experience to Massachusetts communities for facing the one of September, 1938. The State Department of Health knew of approaching flood conditions on the 19th and sent out its engineers to all river valleys. This was a fortunate step, since the western area was cut off from Boston by the hurricane. National Guard planes flew additional engineers and equipment to Springfield. Boiling orders were issued for 33 supplies, and 27 chlorinators were installed, including 9 portable gas machines and units for the application of hypochlorite. A total of 24 cities lost water mains, which in some cases depleted the storage in reservoirs; fourteen sources, mostly wells, were flooded out; there were ten power failures and two standpipes were damaged, although there is no record of any standpipe which was filled having been damaged nor of any elevated steel tank being wrecked.

The damage to many water supplies by the recent flood was identical to that experienced during the 1936 flood. The close occurrence of two major floods and a hurricane clearly demonstrates the necessity of more adequately protecting the works from future disasters.

Plans for Prevention of Future Losses

Several engineers at the New England meeting pointed out the need for definite planning to maintain supplies in the event of a recurrence of floods and hurricanes similar to those of 1936 and 1938.

To insure against power failures, every water works must have auxiliary power. This may be a duplicate power line, preferably underground, from some source distant from its primary source, and preferably hydraulic power, which was found so successful in Providence and East Providence, R. I. Gas and diesel engines make excellent auxiliary standby units for water works, as does a steam power plant. The objection to steam standby plants is that it takes so much time to get them into service and, as at Bristol, R. I., if a suitable source of water is not available, they cannot be used. Most new plants do not build a steam standby unit, the ones existing at present being usually the discarded steam plant which has been nursed along to serve as a standby to the electric system in case of emergency.

Leaks in distribution systems in times of emergency are a severe drain on the water supply. Cities should be sure to install hydrants that do not leak when the barrel

is broken off, and a sufficient number of gate-valves should be installed so that the loss may be controlled and confined to a small area. The advantage of elevated steel tanks was demonstrated forcibly by the recent disaster, because they made possible the storage of water under pressure. These were immediately cut off from the services to conserve the water, and then as soon as leaks were repaired and even before power was available, the water could be turned into the system for domestic use and for fire protection under pressure.

Protection against the destruction of reservoirs may proceed along two lines. In the first place, dams should be strengthened and adequate spillways provided to prevent overtopping of existing dams due to failures of upstream impounded waters. Secondly, it is well to have more than one source of water. Newport, R. I., has four intake lines from scattered sources to its pumping station, and Chicopee, Mass., was able to rely on an old reservoir with an inferior quality of water when its main supply line gave out.

The prevention of flooding of purification plants can be insured by locating them on higher ground, which means the installation of low-lift pumps to supply water to the plant. Furthermore, plants that are necessarily located in areas where floods may occur should be protected by waterproofing and strengthening of the structures to maximum flood level.

The overcoming of decreased filter runs, thus handicapping the plant at a time when the demand will be greatest, may be overcome by covered sedimentation basins where the water will not be stirred up by high winds, and also by the installation of excess filter area in the plant as designed.

The lack of adequate duplicate chlorinating equipment was made most obvious by New England's recent troubles. In Rhode Island practically no plants were equipped with duplicate chlorinators which would permit increasing the dosage of chlorine. If duplicate chlorinators are not provided, some means for the application of a stable solution of hypochlorite should be provided with or without pressure equipment for its application to mains, as an emergency precaution.

Conclusion

There are still engineers and water-works men who believe that the next hurricane will not occur for 123 years, but New England had devastating floods in 1927 and greater floods in 1936 in some sections, and these were topped by the floods of 1938 even prior to the blow dealt by the hurricane. If water-works officials will learn a lesson from the catastrophe of September, 1938, and strengthen their plants against a recurrence, the water works of New England will be greatly improved and able to withstand other emergencies with assurance of continued service.

Incinerator Refuse Aids Street Program

West Palm Beach, Fla., Carries on Large Street-Widening Projects

DURING the past five years the Street Department of West Palm Beach has widened and rebuilt 45 miles of old 6- to 10-foot streets to a uniform 20-foot width, using WPA money for labor and material. In carrying on this work, the side of the street to be widened is graded out to a depth of 8 inches and widened to the intended width on each side. These trenches are then filled with waste from the incinerator consisting of the noncombustibles and the clinker and cinders. The old sterilized tin cans, bottles and other wastes are spread to a sufficient thickness to roll down to 2 inches below the pavement surface.

The remaining surface of the street is then scarified to a depth of 4 inches, and the old material—marl, cochina or limerock as it may be—is bladed over onto the widening strips and compacted with a 12-ton roller. Then 2 inches of new limerock is spread over the entire surface, graded, thoroughly wet and rolled, regraded with the blade and rerolled until the slush or slurry shows uniformly ahead of the rolls, as with standard waterbound macadam. Then the surface is allowed to dry and is swept with a Fordson powered rotary broom to remove all loose material and dust.

The cleaned surface is oiled with 1/3-gallon of road oil, using the city's own distributor, and immediately sanded to a depth varying from ¼- to ½-inch. Traffic is allowed to use the road at once, and for a period of two weeks men are sent out to hand broom and shovel back the sand that is pushed to the sides by motor traffic. When all bleeding has ceased, the remaining loose sand is machine broomed to the side and picked up. Re-oiling of a street of this type is required about once in five years.

Building New Streets

When it is decided to build a new street where there has been only a sand subgrade before, the city grades down the sand to 8 inches below the new grade and puts in 12 inches of the incinerator refuse and rolls down to 6 inches with the 12-ton roller. Then 2 inches of new limerock is spread over the top and rolled to compaction, as described for the limerock surface for the widened streets.

Within the last five years the city of West Palm Beach has used over 250,000 cubic yards of incinerator refuse for the stabilizing of the bases of streets where the subgrade was sand. In addition, a large amount of waste has gone into the filling of low ground in city parks, producing a very large area of playgrounds on which tennis courts and grass plots have taken form.

The care of the streets and parks in West Palm Beach, Fla., is under the direction of D. D. Howard, Superintendent of Streets and Public Improvements.

T. R. K.—806.

The Malaria Control Campaign of Pensacola and Escambia County

Medical and Engineering Studies Designed to Locate Clinical Cases and Anopheles Mosquito Breeding Areas, and Aid Formulation of Plans for Control

IN Pensacola, Fla., an unusually comprehensive campaign has been in progress for several months with the end in view of determining the actual existence of malaria cases in the city and the surrounding localities of the county. At the same time plans are being formulated and measures taken to remove, so far as possible, all breeding places of the Anopheles mosquito, carrier and transmitter of malaria.

The department, an integral part of the Florida State Board of Health and the Escambia County Health Department, is under the immediate direction of Dr. John E. Elmendorf, Jr., of the Rockefeller Foundation, and functions under Dr. A. L. Stebbins, Pensacola City and Escambia County Health Director. The work under this organization is progressing with remarkable speed.

Locating Cases

The first logical step taken was to determine the incidence of the disease by the location of actual cases. This was accomplished by the systematic splenic examination of a sample of the population. The splenic examination was employed associated with the taking of blood smears for malaria parasites from each person positive to the splenic test, and a routine number of blood tests taken on those resulting negative to the same test. The splenic test, a simple palpation of the abdomen for the enlarged spleen, is rapid and reliable.

School children were selected for the sample, since they are congregated and easily acessible, they represent all different economic classes and all localities and they represent various age groups, races and the two sexes. Three thousand school children were examined in the city and 3,500 in the county. The positives found on this examination indicated that a control program was warranted. Their location by residence on a spot map served to demarcate the areas where infection was most prevalent and where Anopheles breeding areas were to be expected and looked for.

Breeding areas were found associated with the districts showing concentration of positive clinical cases. Plans were prepared for the control of these areas, and an average of 60 men have been employed on a WPA project for six months in this campaign to date. Results are already apparent in elimination of breeding areas. These results will be evident later, when a subsequent clinical survey is made, in a reduction of malaria cases for the district in question.

Preventive Measures

Examination of the maps showing the locality of residence of positive cases demonstrated definite groupings around three major local breeding areas and two minor ones. Progressing from the east to the west, the first area was a low, swampy section in the southeasternmost part of the city in the vicinity of the new Ninth Street sewage-treatment plant. This area has been practically eliminated as a breeding menace by the City Engineer's Office in cooperation with the Malaria Department. The excess dirt from the city's street-grading project was wasted in this area under the supervision of the Malaria Department. The streets were graded and crowned and the excess utilized as fill, thus eliminating the areas responsible for the breeding of the malaria mosquito. Attention should be called to this phase of city management and cooperation between two departments working for the public's good.

The second large area was in marsh ground around the Devilliers Street sewage-treatment plant, where the ultimate cleaning up of the area will be accomplished by drainage accompanied by necessary fill. The fill must be allowed to settle from six months to a year before the drainage tile is placed to secure permanent results. Semicircular surface tile or inverts, and the usual subsurface tile, will be used to effect the ultimate drainage.

The third of the large areas is to the south of the Kupfrain Park section in the northwestern part of the city, where there are marshes, springs and seepage areas. In this district many squatters live. The cure here is drainage with invert tile and laterals. The fourth area is northwest of Kupfrain Park, a separate impounded drainage area, in which the possible cures are concrete sumps to which the water can be drained and treated with a larvacide, vertical drainage, which is a possibility, or draining the area into the main sewers of the city by a rather extensive drainage system. The fifth area is the north central section, where there are many sink-holes, which will be drained by tying up with a recently completed rectangular storm drain culvert built by the city.

Cooperative Campaign

The campaign directors are accentuating permanent methods of control wherever finances are available and the terrain will permit. The program includes talks before the Parent Teachers Associations, the school children themselves, service clubs and the medical profession. A stand-

a malarial control film with "local color" inserted through the use of shots from the various areas within the city of Pensacola is being made available for educative purposes.

There has been a remarkable spirit of cooperation between the various health and engineering agencies in the program, which has included the city, county and state health departments, and the City Engineering Department, as well as the Rockefeller Foundation, which has acted as the unifying agency for the campaign. It is hoped this campaign will be a demonstration of the effectiveness of this type of work and will be the start of a very wide program of malarial control throughout the entire coastal plain of the Gulf States. The cost of the work in Pensacola, as far as actual control measures is concerned, is defrayed by allotments from city and county funds assisted by WPA projects, which are proving to be most satisfactory.

TWO PAIRS OF "BEFORE AND AFTER" PICTURES SHOWING THE RESULTS OF THE DRAINAGE PROGRAM IN ESCAMBIA COUNTY, FLORIDA

Casting Yard for Tile

A casting yard for concrete tile and inverts has been erected on city land next to the Devilliers Street sewage-treatment plant for the purpose of making all drainage work permanent. Sheet steel invert forms for the 14-inch semi-circular inverts, and presses for the manufacture of the 4- and 6-inch drainage tile as well as the 24-inch collecting drains, have been assembled and the casting is going ahead rapidly.

A concrete casting floor was first laid and then a concrete curing pit was installed, a Ransome 3½ S tilting mixer was purchased, and bins were set up for the various aggregates. All casting is done under a shed to protect both the workers and the tile from the elements. Under the roof of the shed is a monorail trolley for moving the heavier tile from the forms to the curing pit. A small field office is also included. The casting yard itself is on a part of the first section of the fill made on the marshes to control the breeding of malaria mosquitoes. It is surrounded and protected by a high wire fence to prevent possible thievery of materials.

In addition to the medical staff mentioned above, the work is being carried on with the assistance of David B. Lee, Engineer and Sanitary Engineer, and J. A. Mulrennan, Entomologist.

T. R. K.—824.

The Council-Manager Through English Eyes

LOCAL GOVERNMENT SERVICE, the magazine of the National Association of Local Government Officers, of Great Britain, carries in its issue of December, 1938, the second installment of a two-part article by D. B. Tweedy on "Towns Run by Council Manager." This is devoted to a discussion of "How the American System Operates." After describing the distinctive features of the council-manager plan and the qualifications of "the ideal chief officer," the author cites some examples of exceptional success, and adds:

> "The city managers are not miracle workers; most are hard-working, full-time-and-then-some, practical men with an unusual and alluring chance of promotion. The few examples of outstanding success that are briefly surveyed above does not mean that there are no exceptions. There are, and will probably continue to be, a few odd cases where the council-manager plan has been adopted but where the people have elected the old political crowd to the council and the council has either chosen a local chronic jobholder as manager or has made miserable the life of an imported experienced man by petty nagging and cheap politics."

New Water-Supply Main Installed at Corpus Christi

Cement-lined Centrifugally-Cast Bell-and-Spigot Pipe with Cement Joints Used

THE rapid growth of Corpus Christi, Texas, as an industrial center had taxed the housing, water-supply and sewerage facilities, so that an extensive water-supply project for the construction of a 15.5-mile supply line became necessary late in 1937.

Present Water Supply

The present water supply of Corpus Christi, a city of 35,000 population, is furnished by an impounding reservoir with a storage capacity of 66,000 acre-feet on the Nueces River approximately 36 miles northwest of the city. Water from the reservoir flows down the river channel to a low diversion weir at Calallen, 16 miles from Corpus Christi, and thence to the filtration plant. From this point the water is pumped to the city through a supply main of 20-inch cast iron pipe. The present water-treatment plant capacity of 7 million gallons a day is overtaxed and is now being increased to 15 million gallons a day.

To meet the increasing demand for water during recent years, pumping units and booster stations have been added, and in March, 1938, a 10,000,000-gallon surface reservoir was completed. In the meantime, however, it became evident that the 20-inch supply main had reached its maximum capacity, and studies for an additional supply main from the Calallen pumping station to the city were made. After exhaustive investigation, it was decided to supplement the existing 20-inch supply main with an additional 30-inch main, both to be operated as pressure mains.

Specifications for New Supply Line

In preparing specifications for the new main, a careful study was made of various kinds of pipe material. As a result of this study, it was decided to include cast iron pipe and steel pipe. Specifications were written to cover 30-inch steel pipe made of open hearth process plates, A.S.T.M. specifications, serial designation A-1034, except that the silicon was not to exceed 0.05 per cent. The plate thickness was specified as 3/8-inch and the length 36 to 48 feet. The ends were to be prepared for couplings and alternate specifications called for the pipe to be enameling inside and out or with enamel inside and wrapping and enamel outside.

Specifications were also written to cover 30-inch cast iron pipe of the bell-and-spigot type in two classes: approximately 15,100 feet of Class I pipe capable of withstanding a working pressure of 86 pounds; and 66,850 feet of Class II pipe for a working pressure of 65 pounds. The laying length was specified at not less than 12 feet and not more than 18 feet. For centrifugally cast pipe, the thickness specified for Class I pipe was 0.74-inch; and for Class II pipe 0.72-inch. For high-tensile pit-cast pipe, the Class I pipe was specified to have a thickness of 0.83-inch, and the Class II pipe a thickness of 0.80-inch.

A cement lining for the cast iron pipe was specified in order to overcome any decrease in the value of "C" with an increase in the age of the line. A conservative value of "C" for cement-lined pipe is 140. In considering the cement lining, the extra cost for lining and the decreased cross-sectional area were weighed against the increased carrying capacity throughout the economic life of the pipe.

A study of the experience in a number of states in the use of cement joints for cast iron water mains led to the inclusion of this type of joint in the specifications as an alternate to lead joints. The reasons for this decision were that records of use of cement joints show good perform-

METHOD OF UNLOADING AND HAULING THE 16-FOOT LENGTHS OF PIPE AT CORPUS CHRISTI

ance, and a saving of approximately $25,000 over the cost of lead joints was anticipated. The bids received showed an actual saving of $29,000.

Prior to beginning construction, a series of tests was made on cement joints in 6-, 8- and 20-inch pipe. One test consisted of filling the joint with cement by means of cement-gun-type equipment; this test was a failure, since the joints could not be calked tight and considerable leakage resulted. Another series of joints on 6- and 8-inch pipe was tested, with the cement placed in the joint by hand and calked with hammer and calking irons. A pressure of 125 pounds per square inch was placed on this pipe within 10 minutes after the joint was made. After 15 minutes, a small amount of sweating resulted. The pressure was then reduced to 70 pounds, the anticipated line pressure, and allowed to remain at this figure for 24 hours, during which time no leakage was noted.

Specifications likewise covered trenching and backfilling operations, calling for a trench with vertical sides, the width of the trench to be at least 12 inches greater than the pipe diameter, excavated to line and grade with bell holes excavated to extra width and depth for access in calking. Backfilling was required to be brought up uniformly on each side of the pipe and tamped in layers not exceeding 6 inches in thickness until the spring line was reached. It was permitted to increase the layers above the spring line to 12 inches in thickness up to 1 foot above the top of the pipe.

TRENCHING AND BACKFILLING ON THE NEW CORPUS CHRISTI WATER-SUPPLY LINE

Bids were received on November 10, 1937, and the contract was awarded to Brown & Root, Inc., of Houston and Austin, Texas, for Mono-Cast centrifugal pipe, manufactured by the American Cast Iron Pipe Co. The pipe was designated to be furnished in 16-foot lengths, tar-coated outside, cement-lined inside, and the bell-and-spigot joints to be made with jute and cement.

Unusual Manufacturing Problem

Fulfillment of this order required a total of 5,121 pieces of Mono-Cast centrifugal pipe, 30 inches in diameter and 16 feet long, which was the largest single order for centrifugal cast iron pipe of this diameter ever placed in the United States up to this time.

The contractors estimated that they would lay from 1,000 to 1,400 feet of pipe daily, which would require a minimum production of 65 pieces of 30-inch pipe per day. Bids were received on November 10, 1937; tentative award was made on November 15, 1937; bond was approved on December 4, 1937; shipment of pipe began on December 23, 1937; and the final shipment was made on April 30, 1938. The production of the pipe began on December 20, 1937, with 25 pipe produced in 8 hours. Within a few days the production rate was increased to 30 pipe per 8-hour shift. The shop operated two 8-hour shifts per day, five days per week, so that approximately 300 pipe per week were shipped during the first period. Production was gradually increased from 30 pieces per shift to a record rate of 55 pieces per 8-hour shift, 110 pieces per day, or 550 pieces per week.

Constructing the Line

At the Calallen pumping plant the pumps are connected into a header leading into the venturi meter. Beyond this meter is a 20-inch wye branch. Formerly one branch of this wye discharged into the old 20-inch main, while the other branch was plugged. The plug was removed and the new 30-inch main connected into the wye, from which point the 30-inch line diverges in a southwesterly direction from the location of the 20-inch line.

All excavation was in clay or sandy clay, no rock or gravel being encountered. The trench stood up well without bracing, with the exception of isolated stretches totaling less than 3,000 feet. Obstacles along the line were fully anticipated by the plans, and arrangements were made well in advance for traffic detours crossing other pipe lines and railroads, cutting fences, moving small structures, etc.

All trenching was done with an Austin trencher with 42-inch buckets equipped with side cutters, making it possible to cut a trench 48 inches in width. The deepest cut on the line was 10½ feet, and the average cover over the pipe was 4½ feet. At bell holes the cutter was dropped 1 foot for a distance of approximately 3 feet, while the widening of the trench at bell holes was done with compressed air spades. The trench was excavated to line and grade from batter board stakes, and the bottom of the trench was hand-dressed to grade. As the trench was completed, the pipe was placed by means of a Link Belt 1¼-yard crawler dragline with a 45-foot boom. This type

LAYING THE NEW CAST IRON SUPPLY LINE AT CORPUS CHRISTI
Left—Lowering a 16-foot length of 30-inch pipe into the trench. Right—Yarning a cement jute joint

of equipment was of ample capacity to handle any load encountered, and in the hands of an exceptionally capable operator greatly expedited the work in maneuvering pipe into position.

Laying the Pipe

Pipe were handled into the trench by means of a wire sling. A strand of ½-inch braided jute was placed around the spigot, the joint forced home, and the pipe trued up for line. The spigot was centered in the bell by means of joint spacer chisels, and the jute was tightly calked into position at the base of the socket. Pipe laying was kept approximately 100 feet ahead of cement calking so as to avoid disturbing the finished cement joints.

Following 100 feet back of the placing of pipe were the calkers making the cement joints. A dry mixture of standard portland cement and water was prepared, using only sufficient water to enable the mixture barely to be balled in the hand. With the spigot centered in the bell, and the jute calked home, this mortar was packed into the joint to half of the depth of the socket and thoroughly calked with hand hammer and calking irons. As soon as the first round was finished, the joint was filled and calked flush with the bell. The calking blows were approximately as heavy as if lead were used instead of cement.

Following the two calking crews was a calking inspector who checked the work at each joint and wiped a fillet of cement mortar over the exposed joint surface to prevent a too-rapid drying-out of the cement in the joint. The calking crew consisted of six men, four calkers working in pairs, a mortar mixer, and the follow-up man.

Tamping was done by hand, materials being pulled into the trench by two backfilling machines. Tamping under the bell was done with short tampers, following which, material was tamped along the side of the pipe in 6-inch layers carried up evenly on both sides to the spring line. From the spring line the backfill was tamped in 12-inch layers up to a point 1 foot above the top of the pipe. The rest of the backfill, except paved areas, was not tamped except when pipe was laid under pavement.

Where joint leaks were found during line tests, the cement joint was cut back about half the depth of the socket. The cut was then filled with fresh damp cement and calked. During such work pressure was taken off the line, but the pipe was not drained.

Miscellaneous Highlights

Concrete box culverts were required at three points on the line: one where the pipe line crossed the main highway through a heavy fill, and at two railroad crossings where the pipe line crossed through heavy railroad embankments.

Slight curves in the pipe line, both horizontal and vertical, were made by deflecting the joints, the maximum deflection being under two degrees. Where the deflection in the line exceeded two degrees, standard bends were used, the maximum being one-eighth bends. In all cases, with one exception, a full length of straight pipe was placed between adjacent bends. At all bends, extra tamping was done along the pipe and concrete anchors installed.

At low points, 8-inch valves and blow-off tees were placed in the line. Air valves were installed on the summits, located on the dome of 20 x 30-inch tees set in the line, and protected by 2-inch gate-valves mounted on bronze nipples. On the inside of the dome cover there was placed a 6-inch section of 4-inch pipe around the air outlet, providing an air cushion outside the 4-inch nipple.

At intervals on the line, anticipating early demands for water service, 6- and 8-inch connections were inserted. A number of 30-inch valves were installed between the pumping plant and the city connection. All main-line valves, blow-off valves, and air valves were set in concrete manholes with bolted covers.

All operations of sterilizing, filling the line, operating valves, etc., were under the direct supervision of the Superintendent of Water Works. As each section of the pipe was completed up to a valve, it was put under water pressure. Water was admitted to the line at the Calallen plant, thoroughly sterilized and with lime added. It was found that filling the line required approximately 3,000,000 gallons. After testing, the line was flushed out, sterilized and put into operation on May 12, 1938.

Benefits of New Line

A comparison of conditions with the old and new lines in operation based on short runs is interesting. Pumping through the old 20-inch main, with both booster stations operating, the delivery was 5.5 million gallons daily, requiring 650 horsepower and requiring a pressure of 94 pounds at the Calallen plant. Pumping through the old 20-inch main and the new 30-inch main in parallel, with no booster stations operating, the required horsepower was 200 and the pressure required at the Calallen plant only 60 pounds.

Pumping through both mains, with no booster operating, at 8.5 mgd, was accomplished at a pressure of 68 pounds; 9.0 mgd required 74 pounds; 9.4 mgd required 77 pounds; and 10.0 mgd required 78 pounds. It is anticipated that the power consumption under the new conditions will be approximately 45 per cent of the power consumption when all pumping was through the old 20-inch main alone.

John W. Cunningham is Superintendent of Water Works for Corpus Christi. J. M. Gellinger, Vice-President, Brown & Root, Inc., Corpus Christi, Texas, was in charge for the general contractors, and W. G. Cullum, of W. G. Cullum & Co., was in charge of construction. All cast iron pipe was furnished by the American Cast Iron Pipe Co., Birmingham, Ala.

New and Rebuilt Incinerators Dispose of Tampa Municipal Wastes

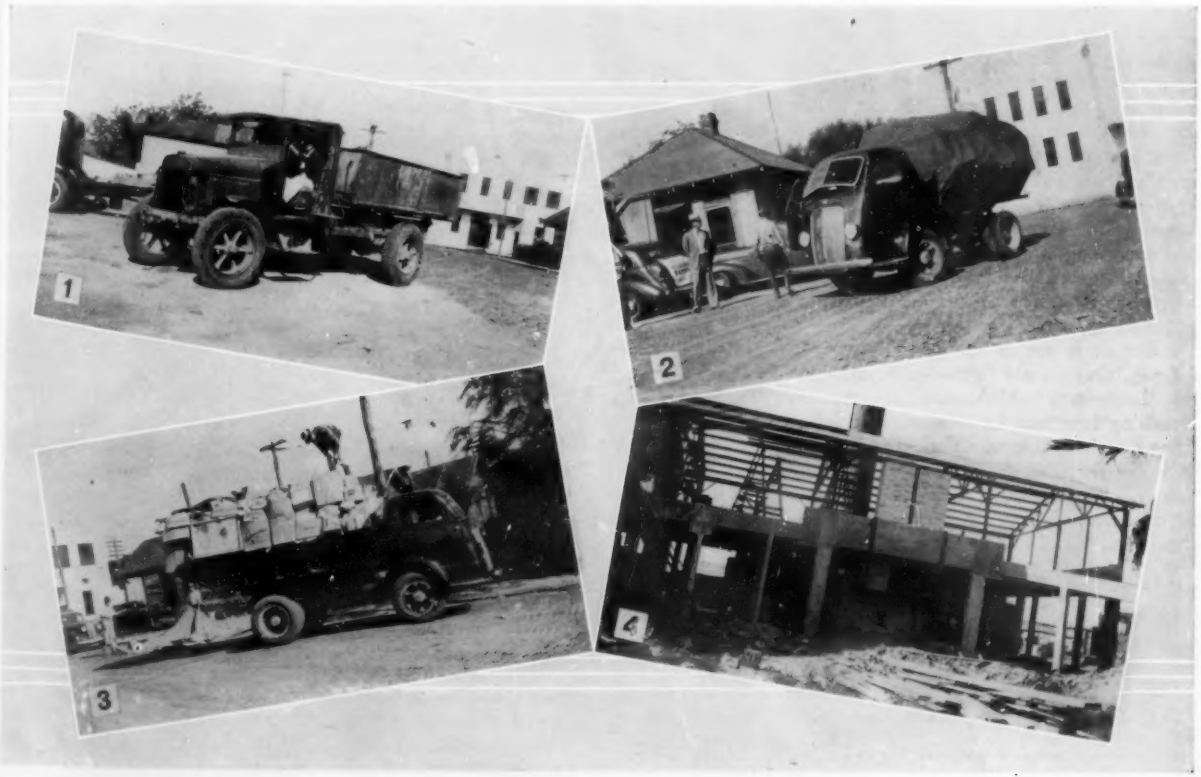
Collection System Involves Replacement of Old Trucks with New Short Wheelbase Units

AS PART of its program to increase the efficiency of refuse collection and disposal, the city of Tampa, Fla., has replaced one old long wheelbase truck per month since January, 1938, with a new short wheelbase truck, which is more easily handled in alleys and at the incinerators; and, because of the cab-over-engine feature, these new trucks take a one-third larger steel body than the old trucks. These bodies are completely fabricated by skilled electric welders in the city shops. Another part of the modernization program is the construction of two new circular incinerators with a new 100-foot brick stack, and the reconstruction of the two old units following the completion of the new units.

The New Trucks

A study of the operating cost of the old 143-inch wheelbase trucks in the collection service showed that $100 per month could be saved in gas and oil and maintenance alone by the turning-in of the old trucks for the purchase of new 99-inch wheelbase trucks, with hydraulic hoist. This resulted in the purchase of one new International truck each month since January. The cab-over-engine feature of these new models makes it possible for the city to mount the 6½-yard collection bodies on these trucks instead of 5-yard steel bodies, as on the old longer and less easily handled trucks, with gravity roller dump type bodies. The shorter wheelbase is particularly worth while in the alleys and also at the incinerator, where the new trucks can drive straight up the ramp to the unloading floor and dump at the charging holes, while the old trucks had to turn in the yard and back up the ramp to the charging holes.

The city has a skilled welder in its own shops who, with a helper, makes the steel bodies for the collection trucks. These are cut from sheet metal and then electrically welded to form watertight bodies that are painted red to match the trucks, making a neat, attractive job. The bodies are all mounted in the shops, using St. Paul or Wood hydraulic hoists for dumping.



WASTE COLLECTION AND DISPOSAL IN TAMPA, FLA.

1. One of the older collection trucks still in service. 2. New cab-over-engine type collection truck arriving at the incinerator with the load well covered by a tarpaulin. 3. With the tarpaulin removed, one sees an expert job of stacking to get the maximum load of refuse per collection trip. 4. The old incinerator in process of reconstruction

Collection

Collection of garbage and rubbish is made from householders' containers in alleys or from the back of the house if it is not located on an alley. Each truck carries a driver, two pick-up men and one top man on the load. The trucks work two 9-hour shifts, with the night shift going on at 9 P.M. and taking care of the downtown business district, stores, hotels and the produce section. Collections are made three times a week from the residential section, and daily from the business section.

The collectors have become experts in the packing of the trucks, and even though the bodies have a water-level capacity of only 6½ cubic yards, they come in with at least twice this load because of the diligence of the top men in piling cartons and wooden fruit crates at the sides and then filling the center with the loose collection. As soon as a section of the load is filled, it is covered with tarpaulin, and when the truck starts for the incinerator the entire load is covered and, with the new trucks particularly, looks as innocent as the loads of citrus fruit one sees so commonly on the road in this great fruit-producing state.

Incinerator Program

The city of Tampa has recently built two new circular Nye furnaces for the incineration of garbage and refuse. These units are 16 feet in diameter and have a capacity of 50 tons each on a 24-hour run. These two new units, which are connected to a new 100-foot brick stack with an inside diameter of 7 feet within the firebrick lining, replace two separate incinerators built many years ago in outlying sections of the city. The expansion of the city had completely surrounded these units with a residential district, so the incinerators were moved into the industrial and lower-class residential area to centralize the operation and also to make possible the use of prisoners from the stockade at all incinerators, thus reducing the cost of operation to the city and getting useful work from those whom the city was necessarily punishing for some minor crime or misdemeanor.

As soon as the two new Nye units were completed, the city began the reconstruction of the two older 16-foot circular Nye units. The new furnaces are built with steel jackets, while the older furnaces have brick walls and are reinforced with new buck bars and bands. The two old units have a steel stack, which was in good repair and so was not replaced at the time of this WPA project. Each old and new unit has a separate Buffalo Forge Company blower for forced draft when needed to insure complete combustion.

The construction of the new incinerators and the reconstruction of the old units was done under the direction of J. E. McGlamery, Superintendent of Sanitation. J. F. Crane was Construction Superintendent for the Nye Incinerator Co., of Macon, Ga., during the work. T. R. K.—818.

Sound Accounting Facilitates Municipal Progress

PROPER financial records are not only of great use in establishing municipal credit, formulating fiscal policies, regulating services to the public, but absolutely essential to accurate and understandable reporting of facts to taxpayers. Progressive cities are constantly being measured and appraised. Because a city is a public agency operating almost without exception upon credits, either from taxpayers or securities buyers, a large portion of such evaluation is based upon the city's own records. If the municipality's accounting is clear and adequate, then progress will be unobstructed. If the bookkeeping is confusing and insufficient, then progress will be hindered by high interest rates, increasing tax delinquency and, sometimes, even by taxpayers' strikes.

While these are severe penalties for lax financial record-keeping, they do not disclose the full damage. Both old and new business establishments are constantly searching out promising locations for new sales outlets, new branch plants, or new main factories. Their surveys place strong emphasis upon the recorded fiscal history of a prospective urban community. Their experts searchingly analyze a municipality's records and, finding them confusing or incomplete,—both certain indices of erratic tax policy and unreliable administrative practices in government,—recommend investment in some other city with comparable and dependable records.

One fair method of answering the oft-put question "What's the use?" is to summarize what adequate financial accounting may do for a city where it is fully utilized. The outstanding contributions are:

1. Establishes and maintains a favorable credit rating with taxpayers and investors.
2. Encourages business to expand and new industries to locate in city.
3. Forestalls financial abuses.
4. Permits formulation and maintenance of sound long-term finance plans.
5. Enables execution of comprehensive long-range public improvement programs.
6. Increases efficiency of departmental activities and reduces cost of services to citizens.
7. Preserves and protects public capital assets.
8. Assures accurate and intelligible reporting of municipal affairs.
9. Develops employee esprit de corps.
10. Inspires public confidence and support.

These, briefly, are my views on the necessity of all municipalities' adopting sound modern methods of accounting in all departments. Furthermore, I believe that all municipal financial records should be machine-recorded in all municipalities, very small ones as well as all others. Efficiency is not a question of size, but of the quality of the individuals in the municipal government.

HUME A. NOWLAN,
Secretary, West Virginia League of Municipalities, Charleston, W. Va.

WOMEN'S CLUBS AND CITY OFFICIALS

THE passing of Zona Gale, on December 27, must have recalled to long-time readers of THE AMERICAN CITY the fact that Miss Gale, a quarter-century ago, was Chairman of the Civic Department of the General Federation of Women's Clubs, and an occasional contributor of civic ideas and ideals to this magazine. As an *in memoriam* tribute to an able novelist, essayist and playwright, the following paragraph is reprinted from the late author's article, "How Women's Clubs Can Cooperate with the City Officials," in THE AMERICAN CITY for June, 1914:

"It is always possible for women and city officials to do the small remedial, palliative things in a town cooperatively. It is even possible for women and city officials to begin the big things cooperatively. But when the fundamental things in the life of the town are to be faced, there is no assurance of this indirect cooperation being long successfully maintained. There is only one direct means of cooperation between women's clubs and city officials—the franchise for women."

This wish, at least, Zona Gale lived to see realized.

Complex Treatment for City Sewage, Caustics and Dyes

Spindale, North Carolina, Has a Well-Operated Plant Treating Caustic and Dye Trade Wastes

THE problem of sewage treatment in a small industrial city is a truly large one, but Spindale, N. C., went after it in a thorough manner when the threats of heavy penalties resulting from nuisance suits had assumed serious proportions. The present plant receives 85 per cent of its average flow of 375,000 gallons per day from rayon, cotton dyeing and hosiery mills, and the rest of the flow is the domestic sewage of about 3,000 people. The industrial flow is divided about equally between caustic wastes and spent dyes.

To prevent the industrial wastes from completely swamping the plant, a lagoon of 900,000 gallons was built by making a dam across a small ravine, and all industrial sewage flows to this detention basin, from which the flow is controlled manually. The precipitation in the basin has reduced its capacity to some 700,000 gallons. Plans are in prospect for a 2,500,000-gallon basin with a creosoted wood floor for the baffles to better mix the wastes, and also to provide for the flushing-out of the precipitated wastes so as not to load them on the sewage-treatment plant nor to reduce the effective size of the basin by their retention.

About 500 feet from the retention basin the flow of the industrial wastes enters the 12-inch sewer through which the domestic sewage is flowing, and for the 2,000 feet from there to the plant the flows mix.

Chemical Treatment Plant

The 12-inch line enters the plant at a small chamber provided with a by-pass gate leading to a 10-inch line running direct to the creek. The normal flow is through a hand-cleaned bar screen with 1-inch openings. The screenings are raked into a wheelbarrow and buried daily. Following the screen is a short grit chamber 13 feet 6 inches long, which is cleaned twice a week to prevent septic action from getting started. The sewage drops over a weir and runs through a Builders Iron Foundry venturi meter with a 3½-inch throat in a 6-inch line. The sewage then goes to the vault, where it receives an average dose of 110 ppm of copperas and sometimes lime when needed. Provision is made here also for the introduction of ferric chloride, which has been added at the same rate as the copperas, but its use has not been continued except at times of a low pH value of the sewage.

The chemicals and sewage are thoroughly mixed in a Dorr Turbo-Mixer driven by a 2-hp Louis Allis motor. The sewage has a 7-minute detention in the 8-foot diameter mixer, entering at the bottom of the 6-foot 6-inch well and flowing out of the top through a 10-inch pipe to the Flocculator. A constant flow of sludge from the clarifier is added to the sewage at the bottom of the Turbo-Mixer, and the excess supernatant liquor from the sludge decanting tank enters the line between the Turbo-Mixer and the Flocculator.

The entrance flume to the Flocculator has two baffles with four 6-inch square holes for the admittance of the sewage evenly to the tank, which is 8 feet deep. It contains three paddles with baffles carried to a depth of 4 feet between the sets of paddles. The rotation of the Dorr Flocculator paddles is at the rate of 3 rpm, and they are driven through chains by a 1½-hp General Electric motor. The sewage remains 40 minutes in this tank and during that time develops a heavy floc varying in color according to the predominating dye from the lagoon.

The sewage with the heavy floc flows to a double rectangular tank 55 feet long and 18 feet wide with a depth of 10 feet of sewage. These tanks are equipped with a Hardinge clarifier, which is operated twice a day for 1¾

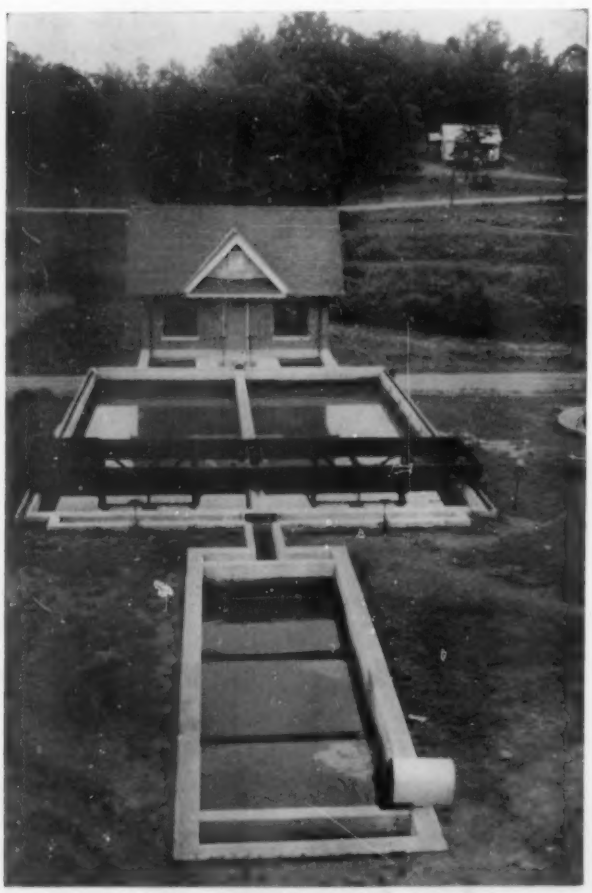
hours each time. It is powered with two ½-hp General Electric motors. The sewage enters the clarifier basins through three rectangular orifices each 6 inches square in each chamber. The Hardinge clarifier mechanism pushes the scum over the end into a scum trough, from which it flows through a 6-inch line to the sludge pump.

The settled sewage flows to two filters of 200 square feet area each. One is equipped with 75-mm sand and the other with 8- to 10-mesh Anthrafilt. The sand filter clogs much more quickly than the other, and plans are under way to replace the sand with a second Anthrafilt filter bed. The filters are washed daily with filter effluent from a 15,500-gallon concrete tank located on the hill behind the plant, which furnishes a 35-foot head for washing. A 17,000-gallon circular concrete tank at the front of the plant receives the wash water wasted from the filters with the accumulated material filtered out. This is pumped back to the sewage flow between the Turbo-Mixer and the Flocculator.

The filtered sewage flows directly to the creek without chlorination and just about equals the flow of the stream. Except for some color from the dyes, the sewage effluent is better in appearance than the stream flow, and the analyses are favorable to the effluent, as shown later in this article.

Buildings and Equipment

At the effluent end of the filters is a control house containing the pipe gallery for the filters, and a Fisher electrically controlled saw-tooth effluent valve for the filters, as well as a gage showing the depth of wash water in the hill tank. These are on the ground floor, with an 80-gpm Worthington pump with a 1½-hp General Electric motor which pumps the filter effluent to the wash-water tank and also, by another combination of valves, pumps the waste filter wash water back to the line of sewage to be treated.



THE FLOCCULATOR AND SETTLING TANKS WITH HARDINGE SLUDGE COLLECTOR AT THE SPINDALE PLANT

On the second floor of the control building, even with the tops of the filters, are Builders Iron Foundry loss-of-head gages and rate-of-flow gages for the filters. A Minneapolis-Honeywell float-controlled potentiometer opens and closes the electrically operated valve on the first floor in accordance with the flow into the clarifiers. The variation in the flow to the plant is caused by the operation of the three sewage-pumping stations in the town, the largest of which makes a considerable sudden increase in the rate of flow to the plant. The use of this electrically controlled valve on the effluent line changes the rate of flow through the filters, but with little or no effect on their efficiency.

Pump and Laboratory Building

The pump and laboratory building is located between the screen and the Flocculator on the hill below the wash-water tank and above the control house. In a sump room below the level of the first floor is a Marlo sludge pump driven by a 2-hp General Electric motor which handles the sludge and scum from the clarifier and delivers it to the decanting tank beside the building. The tank has a capacity of 17,500 gallons. Adjacent to the sludge pump is a 2-gpm Ingersoll-Rand Cameron pump which returns sludge continuously to the Turbo-Mixer. This pump sump has a hose connection and a large drain so that it can be flushed out at any time. It is maintained clean and without odor.

On the ground floor of this building is a neat, adequate laboratory, and the chemical feed room, where an Infilco dry feed machine with a ¼-hp General Electric motor and an Infilco solution feed machine are located. In the laboratory the recording register of the Builders Iron Foundry venturi is located.

Sludge Disposal

Sludge is drawn from the decanting tank once a week, or at the rate of 100 tons per month. The sludge beds are four in number and are 55 x 14 feet each, with a 6-inch cast iron sludge line valve for each bed discharging through a one-quarter bend onto a concrete slab. The beds have 8 inches of sand on 4 inches of gravel, laid on a concrete floor with a depressed center in which is laid a vitrified tile drain. The sand is replaced twice a year. When filling the beds, they are filled to a depth of 12 inches which dries to a thickness of 4 inches with the typical sludge cracking. The filtrate from the sludge beds runs to a manhole and thence to the creek into which the plant effluent empties, Spring Branch.

Sewage-Pumping Stations

The town is so situated that it is necessary to pump domestic sewage from three different sections into the line to the plant. Only one-third of the domestic sewage flows

by gravity all the way to the plant. Three Yeomans sewage pumps with 5-, 10- and 20-hp Howell motors pump the sewage as required from the sumps at the three sewage-pumping stations.

Results of Plant Operation

The sewage runs over 300 ppm alkaline the entire time except when the plants are running a sulphur base dye, which is even harder to treat successfully. The pH of the raw sewage runs above 10.9 most of the time, with the pH of the effluent about 9.0 and the stream plus the effluent about 7.4. The dissolved oxygen of the stream and effluent is practically always 5.0 or better.

The sewage-treatment plant for the town of Spindale was designed and built under the supervision of Harwood Beebe Co., consulting engineers, Spartanburg, S. C. The plant is operated by John Pollock, Superintendent.

APPLYING DECANTED SLUDGE TO THE DRYING BEDS AT THE SPINDALE PLANT

T. R. W.—869.

Rezoning and Rebuilding to Check Urban Blight and Tax Delinquency

A PROBLEM increasingly urgent in cities of all sizes is given emphasis in the annual report of the Chicago Plan Commission, for 1938, just published.

The completion of the land-use survey of Chicago, followed by a sensible rezoning of the city, and the development of adequate plans for rehabilitating blighted areas, are declared to be fundamental to the city's welfare. "Otherwise," says the report, "Chicago appears to be faced with gradual but inevitable financial collapse."

The city's land-use survey, now in progress, will be continued through 1939 as a WPA project, for which a Federal allocation of over $1,500,000 was approved on October 13, 1938. Discussing the scope and purpose of this survey, the Chicago Plan Commission report says:

"The city has been divided into 47 enumeration districts, each having an area of about 4½ square miles and a population of about 75,000 people. A schedule card will be filled out for each of the 1,115,000 individual properties in the city. Then, for the first time, Chicago will have complete and up-to-date information concerning the use of land, the type and condition of buildings, population figures, and other factors which affect community growth and development.

"This information will define Chicago's areas of blight, bad housing and improper zoning, and should disclose the factors which have caused neighborhood deterioration. Most important of all, the survey will supply basic data relative to land use which it is essential to have before any valid proposals can be made with respect to the problems presented by blight, decreasing population, tax delinquency and reduced property values. These things reduce the city's income and increase its expense. They will continue to do so in an ever-growing ratio as time goes on, unless existing areas of good development are kept from being blighted, and run-down districts are restored to normal use and value, and put in shape to produce their proper proportion of city revenue."

Half the Population of the United States in One City?

"If the area now zoned for apartment use were to be built up to the maximum volume permitted by the ordinance, Chicago could house half the population of the whole country. However, the past fifteen years show an actual increase of only 8 per cent over the total amount of dwelling area occupied in 1923. Commercial zoning and manufacturing zoning also are entirely out of line with any increase that may reasonably be expected to occur. This study demonstrates that comprehensive and sensible rezoning is a first essential if Chicago is to solve its problems of blight, tax delinquency, reduced city income and increased city expense."

Serious Tax Delinquency

As a specific example of the seriousness of the tax-delinquency problem, the Plan Commission tells of a study of one side of a single block in the West Side Medical Center Area:

"Of the twenty-one lots on the tax rolls, only two have paid their taxes to date, and the other nineteen are delinquent. Of these nineteen properties, thirteen have been delinquent for six years or more; five have been delinquent for from three to five years; and the remaining one has been delinquent for two years.

"The total assessed value of these nineteen properties is $17,907. The total tax delinquency, not including penalties, amounts to $19,028. This is $1,121 more than the total assessed value of all nineteen properties. Penalties, which have been accruing at the rate of 1 per cent per month—on thirteen of the properties for six years or more—have, of course, increased the actual amount of tax delinquency.

"This particular example may be worse than the average, yet it is well known that a large proportion of Chicago property is tax-delinquent. It is equally well known that the aggregate value of Chicago property decreased from more than 4¼ billion dollars in 1927 to slightly over 2 billion dollars in 1937. In other words, the total value of all the property in Chicago today is less than half what it was ten years ago. . . .

"It is therefore no exaggeration to say that the work of the Chicago Plan Commission toward a solution of the problem of transferring blighted areas and tax-delinquent properties from civic liabilities into civic assets that will annually produce their fair share of the city's income is an activity of utmost importance."

Machine Tax Accounting to Increase Collections

Newark, N. J., Finances Go Modern

By VINCENT J. MURPHY
Director of Revenue and Finance, Newark, N. J.

ON January 2, 1939, a modern mechanized system of budgetary control and tax accounting started functioning for the first time in the Department of Revenue and Finance of the city of Newark. The mechanization has two distinct functions: one provides a daily control of expenditures against budget appropriations, and the other provides complete control of all the accounting in connection with the tax billing and the individual account of each taxpayer in the city.

The new tax-accounting system will speed up by at least a month that particularly efficient and successful tax-billing system which, installed four years ago,* has been so widely studied and copied.

For the first time in our history, tax bills due February 1 were all out to the taxpayers by December 31. Also for the first time, the tax bills show all the arrears. We expect that these two innovations will result in a high percentage of collections and a lower tax rate. Still another innovation which we believe will be appreciated, and which we know is a considerable convenience, is the concentration of all cashiers in a single adequate, attractive and newly decorated bank-like office, where all types of taxes may be paid. Previously there were three separate offices hundreds of feet apart, which received respectively (1) current taxes real and personal, (2) delinquent real-estate taxes, (3) personal arrears.

Newark News Photo

Director Murphy is looking into the cage toward the Burroughs receipter, in top picture; below, he is holding a tax bill, with Accountant A. H. Puder at his right, beside the Addressograph which prints the tax bills from a roll of blank paper

Taxpaying More Convenient

This new office for paying all taxes is immediately off the main lobby. Each of the seven cages contains a Burroughs tax-receipting machine constructed to receipt either the initial bill or the installment bills. Heretofore, three of these receipting machines could take initial payments only, so that a taxpayer, eventually reaching the window, might find that he would have to take his money to another cage where the receipting machine fitted his bill. Every cage is equipped to accept any and all taxes.

* THE AMERICAN CITY, July, 1935, page 50.

The Billing System

By the 1934 system, continued through 1938, billing was by taxing districts. Bill and tax duplicate sheet were printed simultaneously by Burroughs billing machines, the sheets resulting in a "book" of 19 volumes in which the receipt of money was recorded as paid during the year. Unpaid accounts at the end of the year were transferred to hand-written delinquent ledgers set up geographically. The job of coordinating the 19 tax duplicate books set up by taxing districts, with the 65 arrears books set up by block and lot number, required nine men working four months.

Not only was this an extremely arduous task, but it has been virtually impossible for the city of Newark to keep the individual accounts of the taxpayers in agreement with the General Ledger Control Accounts. We extracted balances but once a year, making it extremely difficult to locate and correct arrears at the end of the period. It cost the city of Newark large sums of money each year to check these accounts and try to bring them into balance.

Individual Taxpayer's Cards

At my recommendation, our Registered Municipal and Certified Public Accountants, Puder & Puder, took the steps necessary to mechanize and systematize the handling of the taxpayer's accounts. The auditors devised an individual ledger sheet that would show all arrears, any memorandum of tax sale and assessment of the amount of the current bill, as well as all payments for each taxpayer's account.

The current year's taxes are recorded at the same time that the tax bill and tax-billing journal are prepared. The operator performs all three functions with one operation, so that the current taxes are posted to each taxpayer's card simultaneously with the preparation of the bill.

It was also necessary to revise entirely the order of the

55,000 Addressograph plates relating to the realty in the city, putting them in block and lot number order.

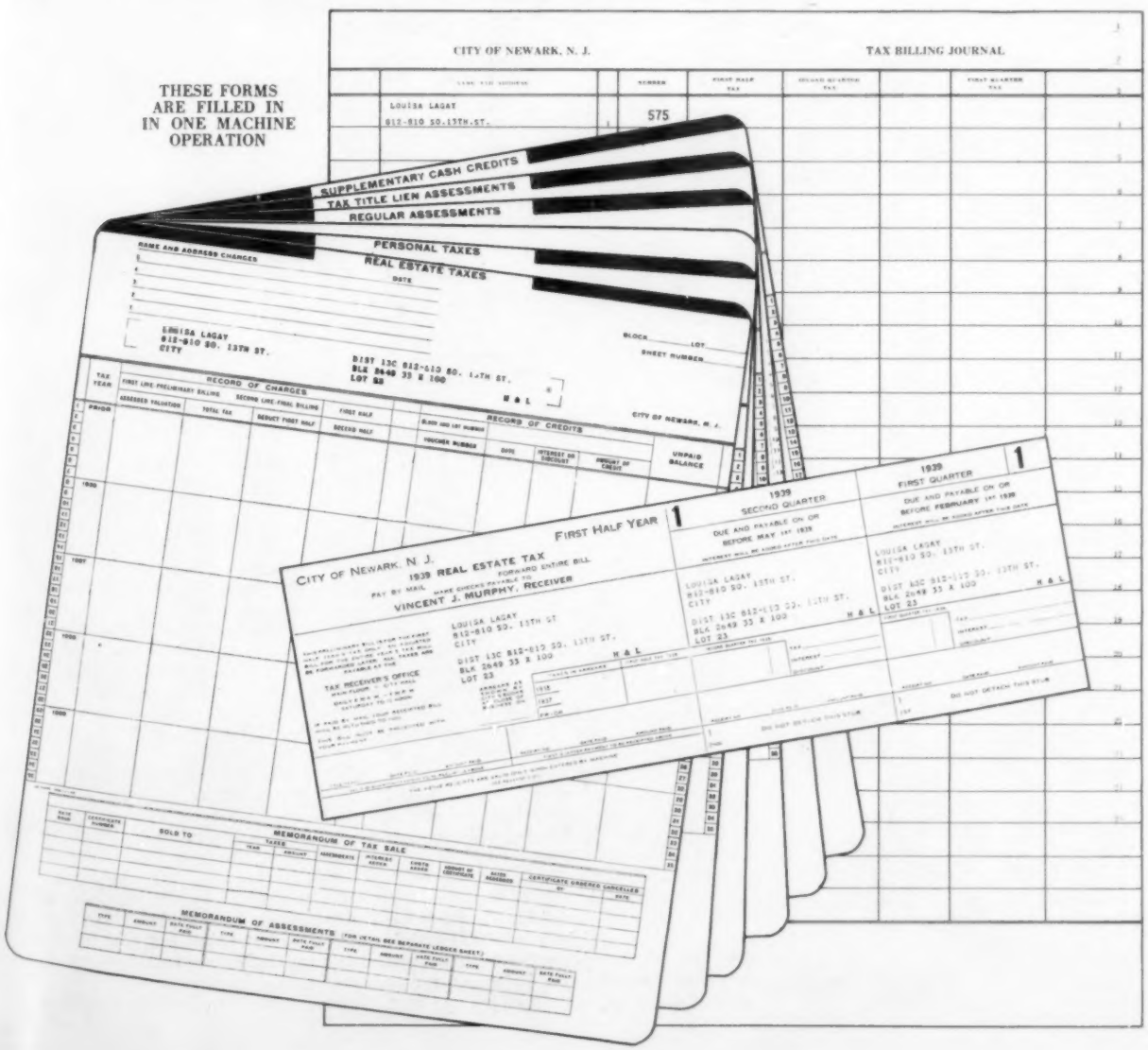
The tax-bill form was also revised, arrears now being included on each bill, and the old tax-duplicate sheet has been replaced by a simpler tax-billing journal sheet, which, as its name implies, merely furnishes a record of the billings and does not carry the payments. The payments are posted on the unit ledger cards. These three records—ledger card, bill and journal sheet—are run separately through the Addressograph machines in order of block and lot, to receive name, address and property description.

This system is simple and adequate, and remarkably inexpensive, because we built on our existing installation of seven Burroughs billing machines. We purchased two more of these machines which, incorporating the multiplying feature, can compute and extend the tax automatically.

Bills are sent out twice a year for payment on February 1, May 1, August 1, and November 1. For the first half of 1939, billing for the 55,000 real-estate records and 70,000 personal tax accounts took 15 days each.

Taxpayers paying delinquent bills present their bills to a counter-clerk who checks them with the unit cards filed in 60 steel DeLuxe ledger trays, made by Wilson Jones Co., of Elizabeth, N. J. The clerk computes the amount of interest and determines whether or not there is a tax title lien certificate outstanding against the property, and also determines that the oldest bill is being paid. The interest is computed by calculating machine. The taxpayer then makes payment at the adjoining cage, and the bill is machine-receipted. At the end of the day the amount of cash is proven with the balance locked in the receipting machine and turned over for immediate bank deposit.

1. *All* tax payments are recorded on the ledger card, whereas previously current payments were entered on tax duplicate sheets, and the payments of delinquent taxes were recorded by hand in another set of books.
2. Interest payments and tax payments are shown.
3. Posting to the wrong sheet is avoided because the block and lot numbers are recorded for each payment.
4. Daily proof is furnished of all postings to cards.
5. The unpaid balance is automatically figured and printed by the machine.
6. At the end of each month, the unpaid balance is proved for each group, so that at the end of the year there is only one month's work to prove. This takes two weeks, instead of many weeks and many more employees, formerly needed to prove the 12 months' entries in the arrears books.



USHA Funds for 155 Local Housing Authorities

AS OF December 16, 1938, the United States Housing Authority reports loan contracts aggregating $320,986,000 plus earmarkings of $328,803,000, which will make possible the construction of low-rent housing projects by 155 local housing authorities in 29 states, the District of Columbia, the territory of Hawaii and Puerto Rico. The list follows:

State and City	Earmarkings Outstanding	Loan Contracts Approved
ALABAMA		
Anniston	$540,000	
Birmingham	4,172,000	$3,828,000
Gadsden	900,000	
Mobile		1,649,000
Phenix City	500,000	
CALIFORNIA		
Los Angeles City	25,000,000	
Los Angeles County	2,669,000	2,331,000
Oakland	2,409,000	2,591,000
San Francisco	13,017,000	1,983,000
COLORADO		
Denver	3,000,000	
Pueblo	1,000,000	
CONNECTICUT		
Bridgeport	6,500,000	
Hartford	4,500,000	
New Britain	1,500,000	
New Haven	5,500,000	
Norwalk	450,000	
Waterbury	1,900,000	
DELAWARE		
Wilmington	2,100,000	
DISTRICT OF COLUMBIA		
Washington	8,400,000	6,600,000
FLORIDA		
Daytona Beach	500,000	
Jacksonville	2,000,000	1,027,000
Miami	2,250,000	
Orlando		548,000
Pensacola		1,055,000
St. Petersburg		959,000
Sarasota	270,000	
Tampa	1,500,000	1,524,000
West Palm Beach	750,000	
GEORGIA		
Athens	570,000	
Atlanta		11,661,000
Augusta	1,000,000	1,369,000
Columbus		1,860,000
Macon	1,750,000	
Rome	540,000	
Savannah	918,000	2,782,000
HAWAII	2,388,000	1,012,000
ILLINOIS		
Chicago	7,326,000	8,674,000
St. Clair County	1,500,000	
Peoria		2,559,000
INDIANA		
Anderson		880,000
Delaware County		427,000
East Chicago	1,000,000	
Fort Wayne	1,500,000	
Gary	2,800,000	
Hammond	1,800,000	
Kokomo		634,000
Marion	500,000	
Muncie		1,141,000
New Albany	450,000	
Richmond	600,000	
Vincennes		317,000
KENTUCKY		
Covington	753,000	1,947,000
Frankfort	102,000	348,000
Lexington	459,000	891,000
Louisville	5,000,000	8,446,000
Newport	750,000	
Paducah	900,000	
LOUISIANA		
New Orleans		25,311,000
MARYLAND		
Annapolis		478,500
Baltimore	1,409,000	21,591,000
Frederick	450,000	
MASSACHUSETTS		
Boston	12,076,000	16,924,000
Cambridge	2,685,000	1,815,000
Chicopee	1,000,000	
Fall River	2,500,000	
Holyoke	972,000	828,000
Lawrence	1,500,000	
Lowell	2,700,000	
New Bedford	2,000,000	
Somerville	2,000,000	
Worcester	3,800,000	
MICHIGAN		
Dearborn	1,500,000	
Detroit	13,436,000	16,564,000
Flint	3,500,000	
MISSISSIPPI		
Hattiesburg	600,000	
Laurel	630,000	
McComb	450,000	
Meridian	1,200,000	
MONTANA		
Billings	270,000	
Butte	900,000	
Great Falls	675,000	
Helena	300,000	
NEBRASKA		
Omaha	2,000,000	2,243,000
NEW JERSEY		
Asbury Park		675,000
Atlantic City	1,250,000	
Bayonne	1,800,000	
Camden	2,500,000	
Elizabeth	1,481,000	2,019,000
Jersey City	7,500,000	
Long Branch	540,000	
Newark	4,401,000	8,199,000
North Bergen		863,000
Orange	900,000	
Perth Amboy	1,350,000	
Plainfield	900,000	
Trenton		2,429,000
NEW YORK		
Buffalo		8,424,000
New York City	14,610,000	38,390,000
Schenectady	1,400,000	
Syracuse		3,930,000
Utica		900,000
Yonkers		2,976,000
NORTH CAROLINA		
Raleigh	1,800,000	
Wilmington	600,000	1,155,000
OHIO		
Akron	5,000,000	
Canton	2,000,000	
Cincinnati	6,399,000	7,101,000
Cleveland	8,847,000	9,153,000
Columbus	4,612,000	1,888,000
Dayton	3,376,000	2,624,000
Portsmouth	1,000,000	
Toledo	3,756,000	1,644,000
Warren	10,000	990,000
Youngstown	2,000,000	2,835,000
Zanesville		1,349,000
PENNSYLVANIA		
Allegheny County	2,800,000	
Allentown		1,446,000
Bethlehem	1,000,000	
Chester		1,948,000
Harrisburg	1,500,000	
McKeesport	900,000	
Philadelphia	16,882,000	15,118,000
Pittsburgh		16,623,000
Reading		1,804,000
Scranton	1,000,000	
PUERTO RICO		
Ponce	1,000,000	
Puerto Rico Housing Authority	8,000,000	
San Juan	3,000,000	
SOUTH CAROLINA		
Charleston	704,000	2,313,000
Columbia		1,851,000
Greenville	800,000	
Spartanburg	800,000	
TENNESSEE		
Chattanooga	1,838,000	2,262,000
Johnson City	300,000	
Knoxville	1,000,000	2,504,000
Memphis	1,000,000	5,541,000
TEXAS		
Austin	500,000	643,000
Brownsville		534,000
Corpus Christi	479,000	846,000
Dallas	6,000,000	
El Paso	1,000,000	1,210,000
Fort Worth		2,028,000
Houston	7,000,000	3,002,000
Laredo	600,000	
San Antonio	5,612,000	3,588,000
Waco	900,000	
VERMONT		
Burlington		436,000
VIRGINIA		
Portsmouth	1,500,000	
WEST VIRGINIA		
Charleston	325,000	2,175,000
Huntington		2,101,000
Martinsburg	450,000	
Morgantown	270,000	
Parkersburg		672,000
Wheeling	1,350,000	
WISCONSIN		
Superior	675,000	
Total	$328,803,000	$320,986,000

When Is Housing "Unfit" or "Substandard"?

FACED with the necessity of defining "unfit" and "substandard" housing in connection with their low-rent housing programs, several cities are changing provisions of their building codes or writing new ordinances, the National Association of Housing Officials reports.

Dallas, Texas, is the most recent to pass a complete ordinance determining housing that should be demolished. The ordinance describes in detail requirements for water-closets, kitchen sinks, and connections to city sewerage and water systems, and refers to other health and fire requirements included in city codes. A dwelling may be labeled unfit on any one of five counts, from lack of sanitary sewerage facilities to inadequate entrance or exit as defined in the fire law.

New York City has within the past year made further revisions of its multiple dwelling law providing for improvement or demolition of such buildings unless certain minimum specifications are met. An ordinance has also been proposed to the Chicago Council defining unfit living units and establishing the authority for their riddance. Among other cities with more or less definite specifications on substandard housing are Portland, Ore., Cincinnati, Ohio, and Minneapolis, Minn.

Existing ordinances or housing regulations vary widely among localities. Since part of this variation in standards is due to differences in local conditions and customs, it would probably be impossible to establish a minimum standard for the entire country.

Where cities have not set up regulations establishing minimum requirements for housing, the Association recommends that local housing agencies obtain official recognition of some standards before undertaking new public housing construction, but points out that adoption of such regulations is not necessary before undertaking housing surveys with a view toward improving housing conditions.

Open Litter Baskets— They Do Serve a Purpose!

Litter Baskets in front of you—
Litter Baskets in back of you—
Litter Baskets to the left of you—
Litter Baskets to the right of you—
Litter Baskets all over town.

By MATTHEW NAPEAR
Secretary, Department of Sanitation, New York City

MORE than 45,000 litter baskets are scattered throughout the five boroughs of New York City: 10,815 of them are the new open wire litter baskets; 428 are Solar sheet metal cans with a double swinging cover; 243 are hooded cans; 1,764 are discarded oil drums with the heads cut out, painted, and used in the market area; and 31,363 are ordinary open galvanized street cans. With all those, there are people who do not see them.

What is the reason for this indifference? To answer this question, it is necessary to divide all the people who make up the resident population of New York—or of any other city for that matter—into three classes:

First, there is a great body of people who are willing to learn and, further, are eager to carry out the lessons they have learned in a practical and efficient manner. Then there is a great mass of people who are diffident, but who, once they have been shown the benefits that accrue from added knowledge, are willing to learn and likewise to carry out the purposes of such instruction in a practical yet perhaps less efficient manner than the class I have just referred to. Then, of course, there is the third and last class—men and women and children who simply won't learn. Even bitter experience has no effect on this class. The will to absorb any information that will result in profitable and infinitely more healthful living conditions has been omitted from their characters.

In a city made up of over seven million people, we find it necessary to cope with not only one but all three of these classes. And each class must be treated in accordance with the willingness of its constituents to learn. Therefore, the Department of Sanitation has daily to face a most discouraging problem of how to make the residents litter-conscious and to force into the minds of all three classes the desire to make the city the cleanest in the world.

Educational Program Helps

As a firm believer in education, and realizing that civic ideals can best be instilled in the hearts and minds of children at an early age, we hit upon the idea that children between the ages of six and eighteen should be induced to join an interesting, worthwhile club, because such an effort could go far in engaging their minds with wholesome activities, thus avoiding delinquencies, and make them feel that they are an important part of the machinery which

SLOVENLY TRICKS LIKE DROPPING ONCE-READ NEWSPAPERS OR EMPTY CIGARETTE PACKAGES ARE LARGELY DONE AWAY WITH BY AN ABUNDANCE OF HANDY LITTER BASKETS, SO THAT MR. NEW YORKER IS IMPROVING HIS MANNERS

helps to make our city a more wholesome place in which to live. And so, on September 26, 1934, the Junior Inspectors' Club was formed. Sponsored by the Department of Sanitation, it was designed to interest boys and girls throughout the city of New York to take pride in clean streets, adopting the slogan "Do Not Litter the Streets." Clean streets served as a stepping stone to the idea of personal cleanliness, of both body and mind. (See THE AMERICAN CITY, January, 1938, page 55.)

Then, too, there are duties assigned to a Director of Sanitary Education, Mrs. May M. Gooderson, and to the head of this Department is assigned the important function of making the people of the city of New York dirt-conscious. This can be accomplished only through intensive education, not only of adults, but of children also, in the laws of sanitation. Therefore, the Director of Sanitary Education is establishing, wherever possible, Clean City Leagues in the elementary and junior high schools and the parochial schools of this great city, and she also lectures on the doctrine of cleanliness. The object of these Leagues and lectures is to develop, even though gradually, a sense of individual responsibility in the mind of the child, to insure cleanliness in his neighborhood and his school, and to arouse a sense of civic pride in the betterment of his city.

If children can be educated to realize that clean streets are as important as clean homes for the preservation of health and comfort, there is no doubt that a great sense of civic responsibility would be aroused in the younger generation which by sheer force of public opinion would insist on the observance of civic cleanliness by all citizens, young and old.

Litter baskets and litter cans are distributed from 50 to 200 feet apart, depending upon the amount of pedestrian traffic. In theatrical and shopping districts, at bus stops and in heavy transportation centers, they are closer than in the outlying sections of the city. The approximate cost of the individual basket is $5.50.

Regular crews, which collect garbage, ashes and rubbish, take care of the emptying of the litter baskets and litter cans as part of the collection service. In the more densely populated districts of the city, special trucks are assigned to empty the baskets at night. Sometimes they are emptied three or four times a day.

Value of Open Baskets

We have little or no trouble with the wire baskets as to fires or strewn litter. We have found fires to be more frequent in the closed cans, of which we have over 10,000, than in the open baskets. This, no doubt, is because the material in the basket is visible, which has a tendency to eliminate the possibility of throwing lighted cigarettes or cigars into the accumulated litter. In this respect the basket has proved to be the more economical, because after a fire the can must be repaired and repainted, and this is an expensive operation.

Visibility of the material in the open basket has not only helped as far as fires are concerned, but has also been of great advantage in calling the attention of pedestrians to the fact that it is a litter receptacle for their convenience and should be used for any litter which they might otherwise be tempted to throw into the street. In this way street litter has been greatly reduced.

Municipal Salaries in the State of Washington

FROM a tabulation of local salaries for the year 1938 in all municipalities of over 100 population in the state of Washington, recently issued by the Association of Washington Cities, the following figures for places of over 2,500 population have been compiled. In addition to the positions here listed, the tabulation includes the salaries of a number of subordinate positions—police captain, police sergeant, patrolmen, assistant fire chief, firemen, assistant libararian, clerical position, skilled labor, semi-skilled labor and manual labor.

City	Population	Clerk	Treas.	Engr.	Water Supt.	Street Supt.	Park Supt.	Police Chief	Fire Chief	Librarian
Seattle	365,583	$4,200	$4,200	$5,000	$5,000	$....	$....	$5,000	$5,000	$5,500
Spokane	115,514	3,060	3,120	3,600	3,600	2,280	3,600	3,180	3,180	3,000
Tacoma	106,817	2,940	4,000*a*	4,200	4,500	3,600	2,820	3,600	3,600	3,600
Bellingham	30,823	2,400*b*	2,400	2,400	2,400	2,400	2,100	2,400	2,400	2,190
Everett	30,567	2,400	2,400	1,800-2,400	2,700	1,980	1,500	2,750	3,000	2,400
Yakima	22,101	2,400	2,250	3,000	2,700	1,890	....	2,500	2,750	1,920
Walla Walla	15,976	2,040	2,040	2,220	2,520	1,440	1,260	2,040	2,040	2,000
Vancouver	15,766	2,100	1,800	1,500-1,800	2,520	....	2,520	1,980	1,980	1,500
Hoquiam	12,766	1,800	1,500	....	3,867	2,277	....	1,500*p*	2,613	1,518
Olympia	11,733	3,000*f*	clerk	3,300*d*	1,650	1,980	1,320	2,160	2,100	1,800
Wenatchee	11,627	1,980	1,980	3,000	2,100	engr.	engr.	2,190	2,130	2,040
Longview	10,642	1,620	1,620	1,600	....	engr.	....	2,000	2,820	1,680*s*
Port Angeles	10,188	2,220	2,220	2,700	3,180*k*	....	....	2,220	2,220	1,740
Bremerton	10,170	2,700	2,400	3,600	2,100	2,040	1,500	2,400	2,400	1,500
Centralia	8,058	2,100	....	2,280	2,280	1,800	....	2,100	2,100	1,620
Puyallup	7,094	1,980	1,800	2,580*g*	engr.	....	....	1,980	1,830	1,380
Anacortes	6,564	600	600	3,000*g*	engr.	engr.	1,320	1,782	1,782	990
Kelso	6,260	1,800	1,800	....	1,980	1,920	....	1,980	1,980	1,200
Chehalis	4,907	1,320*dj*	clerk	....	1,560*i*	water	....	1,680	2,100	1,440
Ellensburg	4,621	2,920*r*	2,360*n*	2,400	4,000*h*	water	....	1,920	1,740	1,200
Camas	4,239	1,500	1,620*j*	3,000*ce*	engr.	engr.	engr.	2,100	....	1,800
Renton	4,062	1,800	1,080	$10/*dl*	1,980*i*	water	....	2,220	....	1,350
Port Townsend	3,979	1,320	1,200	....	1,800	1,440	840	1,440	180	840
Auburn	3,906	1,740	1,620	1*m*	1,740	....	480	1,800	....	1,440
Raymond	3,828	1,830*b*	clerk	72	2,580	....	....	1,920	1,920	1,320
Mount Vernon	3,690	1,200	480	10*t*	....	....	....	1,740	660	1,320
Pasco	3,496	600	1,500	....	2,160	1,680	....	1,740	....	960
Pullman	3,322	1,200	1,200	2,100*i*	1,500	engr.	....	1,800	....	....
Shelton	3,091	300	300	480	2,100*i*	water	....	1,800	1,800	1,080
Colfax	2,782	1,500	1,200	....	1,620*h*	water	....	1,500	360	600
Toppenish	2,774	1,800*b*	clerk	....	1,800*i*	water	....	1,800	1,800	600
Sedro Woolley	2,719	480	480	....	....	1,440	....	1,320	300	600
Snohomish	2,688	600	720	....	1,620	1,740	....	1,620	....	900
Dayton	2,528	480	300	....	1,620	water	....	1,380	....	....
Omak	2,547	360*c*	300	1.50*m*	1,500	....	....	1,980	240	300
Cle Elum	2,508	1,800	480	....	....	....	....	1,980	....	420

a Controller. *b* Clerk and comptroller or treasurer. *c* Also water and light superintendent. *d* Also water superintendent. *e* Also street and park superintendent. *f* Also city treasurer. *g* Also street and water superintendent. *h* Also light and street superintendent. *i* Also street superintendent. *j* Also office man for water department. *k* Also light superintendent. *l* Also light and street superintendent and fire chief. *m* Per hour when employed. *n* Also streets and sewers. *p* Also $900 as deputy health officer. *r* Also light and water accountant. *s* Have not reported since 1937. *t* Per day when employed.

Old Well Replaced in the Savannah Water Supply

Conditions in Limestone Coastal Basin

RECENTLY an 18-inch well which was drilled in 1919 for the Savannah, Ga., water works caved in and had to be replaced. It had been drilled with 30- and 24-inch casings for 100 feet, and with an 18-inch casing for the rest of the well. If the outer casing had been carried to a depth of 150 feet, the cave-in would not have occurred. This knowledge was not available at the time the well was drilled, but has been gained in the drilling of the nine other wells now supplying the city.

The New Well

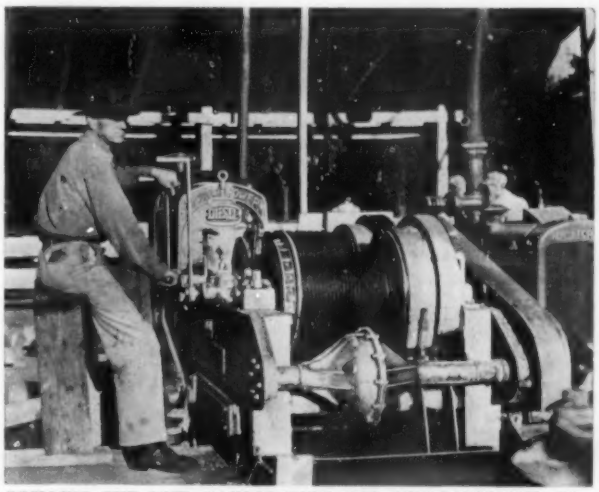
A contract was awarded to the Lane Atlantic Co. for a new well, which was drilled to a depth of 613 feet. The well-drilling outfit, powered by two Hercules DJXC enclosed diesel power units, put down 150 feet of 30-inch casing, and then a 22-inch casing to a depth of 270 feet and sealed the space between the limestone formation and the casing from top to bottom to prevent any possible contamination from surface water. Most of the 613-foot depth was drilled through solid rock. The softer formations from which the water supply is obtained were underreamed to a diameter of 26 inches. Approximately 70 10-hour days, or 700 working hours, were required to drill the well and install the pumping equipment. On completion the well produced 3,280 gallons per minute by meter, pumping against a 150-foot head.

The Draw-Down

When the old 18-inch well, which was located only 30 feet from the new 613-foot well, was drilled, water stood within 16 feet of the surface of the ground, but heavy pumpings in the area have drawn down the water-table to 68 feet. The city takes about 12,000,000 gallons from this underground basin per day, and there are numerous manufacturers also pumping from wells in this area. One paper company alone pumps and uses the same quantity of water that is used by the entire city. Within five miles of the center of the group of wells now supplying the city it is possible to drill and get a flowing well.

The Present Municipal Supply

The present supply for the city of Savannah consists of nine wells of different capacities, ranging from 500 to 750 feet deep and from 12 to 4 inches in diameter. One well was drilled to a depth of 1,300 feet as a test well. No water has been found below 700 feet in this section. The smallest well has an automatic pump which operates between pressures of 55 and 60 pounds in the system. As soon as the pressure in the system drops to 55 pounds, the small pump starts up, and as soon as the pressure reaches



DRILLING THE NEW 613-FOOT WELL FOR THE SAVANNAH, GA., WATER DEPARTMENT

60 it cuts out automatically. The Lane pumps on these Lane shutter-pipe wells deliver water direct to the system from the limestone rock formation.

Reserve Fire Storage

The city maintains one 500,000-gallon reservoir constantly filled with water and ready to throw into the line in case of an excessive fire demand. There is a steam plant constantly maintained ready for use which can deliver water at the rate of 8,000,000 gallons daily to the system for fire-control purposes. This plant has not been used in twenty years, but is maintained constantly ready for operation in case of a failure of the electric supply. The capacities of the electric pumps in the city total 24,000,000 gallons, or twice the demand of the city.

Lewis A. East, who has been Superintendent of Water Works in Savannah for 20½ years, has been responsible for the development of this system and has constantly aimed to establish a greater factor of safety through duplicate pumping equipment and increased storage facilities.

T. R. K.—882.

Employee-Safety Saves City $30,000

AN employee-safety program at Milwaukee, Wis., has reduced the municipal government's outlay for compensation payments and medical expenses for accidents by a third, says the Civil Service Assembly. Before starting its safety program in 1932, Milwaukee spent $90,000 a year on accident compensation for municipal employees. Accidents have since been reduced so rapidly that compensation costs decreased to $60,000.

The Milwaukee program is in the hands of a Safety Commission composed of city officials and representative citizens appointed by the Mayor. City departments carry on year-round safety education among employees. The Commission keeps a daily accident record to focus attention on occupational hazards. Special preventive and corrective measures are taken on accidents which happen frequently.

After WPA, What?

Excerpts from an Address at the Annual Convention of the National Municipal League, Baltimore, Md., December 2, 1938

By THOMAS H. REED
Director of Studies, Republican National Program Committee

THE end of national extravagance from which local units could chisel part of their normal plant and operating costs is not yet, but it is sufficiently imminent for planners in the local government field to begin to take thought of what is going to be done when cities and other units have to live strictly within their own resources again. The habit of being helped has been growing on local government. Can it shake it off? Or will it sit down and cry for Santa Claus and his bag full of projects.

To become self-supporting again is going to be hard for many communities. Hardest, of course, for those which have been getting help in current operations out of the WPA. In the report made, under my direction, by the Consultant Service of the National Municipal League on Atlanta, it is pointed out that the excellent condition of the parks of that city, in spite of a drop of $50,000 in annual expenditures, was due to the relief enterprises of the Federal Government. Cleaning, grading, landscaping, building renovation, all the hundred and one things which have to be constantly forward in a park if it is to present a pleasant face to the community, lend themselves to WPA projects.

There is no question but literally thousands of communities have been doing part of their park and street maintenance and other normal operations at Federal expense. They will have to cinch up their belts considerably when the time comes that WPA administrators no longer cry for light "common labor" projects with low material costs. Budget directors, city managers, mayors, finance committees, should be using sharp pencils in spare moments, figuring just how they are to get to paying their own way again. . . .

The honest-to-goodness new construction projects will be much the easiest to care for in future planning. Many municipalities have come out of the depression pretty well equipped with parks, boulevards and buildings. Though their taste for expensive equipment has been whetted, the pressure of taxpayer opinion will serve to dull it again, and they can go back to making future improvements on their own, much better off, in many instances, than ever before. So-called "Federal generosity" has given them a good start. Schools, city halls, hospitals, auditoriums, sewage-disposal plants, and a multitude of other things, have fallen on them like manna from heaven, but without much affecting their permanent financial structure except in a few cases. The ordinary local community which has received Federal largesse in moderation and possesses reasonable financial resources, can take up the burden of an occasional bond issue for future improvements just as if the Federal largesse had not been at all. With all cities of moderate size, such items as new high schools, city halls, parks and bridges, have always involved bond issues. They still will after WPA and PWA.

The cities, however, which are going to be worst off from the point of view of the difficulty they will experience in shaking off the effects of Federal aid in construction projects are: first, great cities like New York, in which bond financing is a regular recurring operation and in which the Federal grants have been built, as it were, right into the financial structure; and, second, small cities which have taken an overdose of Federal generosity and are experiencing as a result a bad case of financial jitters. Only a hair of the dog that bit them will save them from pretty serious pain. And if there is no more dog, they are in for some very bad times.

How the Problem May Be Met

The remedies which can be suggested to relieve the pains the patients are suffering, or are likely to suffer, most intensely from the orgy of Federal spending may be outlined as follows:

1. *To keep WPA as far as possible out of purely maintenance and operating activities.*—Where it is necessary to cooperate with WPA, which should of course be done, as long as so many unemployed are dependent on it for subsistence, careful bookkeeping should be made to record what the cost of the work would have been under normal circumstances. Perhaps the hardest thing to give up in this category would be some of the educational and recreational services handled by WPA. Perhaps some provision for state and Federal aid to localities in these directions, apart from a relief program, can be worked out. For leaf-raking and such activities, relief labor on a local basis would undoubtedly continue to be available, whatever happens to WPA.

2. *To carefully plan and budget repair and reconstruction work so as to distribute it as evenly year by year as possible.*—To keep records which will show WPA costs and, in contrast, costs under normal circumstances. Then when there is no more WPA, the budgeters will know what to do to provide what obviously is a proper local charge.

3. *In all units to project a ten-year plan of capital improvements, spacing them as evenly as possible, with the method suggested for financing each item.*—In the great majority of the smaller cities, separate bond financing for each item as it becomes necessary will answer all purposes. There may have to be some economizing, or waiting, but a little of either of those processes would not be bad for us right now. In the larger places, where capital budgets in the strict sense are possible, they should be prepared carefully to avoid drastic curtailments in programs already undertaken.

New Public Buildings in Jasper

Jasper, Alabama, has converted relief labor and materials into worth-while accomplishments that will serve all the people for many years. It has been necessary to train common laborers as formsetters, concrete finishers and carpenters, and many have become so adept that they have been absorbed by private industry with better jobs and greater pay.

FOR many years the city of Jasper rented office space for a city hall, and used an old-time wooden calaboose for confining prisoners. Several years ago a building formerly used as a bottling plant was purchased and converted into a city hall. The building was entirely inadequate in the first place, since it was only 20 feet wide. This space was divided, however, and one side used to house the fire truck and the other as offices for the mayor, city clerk, and recorder's court. A portion of the rear became a four-cell jail.

When the Federal works program was first started, a project was approved for an addition to the city hall to house the fire equipment, and provide a jail kitchen for feeding prisoners who had previously been fed by outside contract, and a storeroom in the rear. Native stone was used in this addition. It was quarried nearby and shaped as required on the job. This addition cost $6,000, the city's share $800.

In 1935 the City Council requested the approval of a project to completely remodel the city hall. The entire building was veneered with handsome buff brick; a second floor was added to provide commodious quarters for the mayor, a council chamber, and a large court room that could be used for small civic gatherings. This has practically been completed, and work is now under way in enlarging the jail to provide separate quarters for white and black and make it possible to segregate males and females. Cells from the old county jail were purchased and will be placed therein to provide more jail space. Quarters will also be provided for the police department, and all prisoners will be jailed from the rear and not through the front entrance as heretofore. This building has been appraised at $22,000, with a cost to the city of $5,500.

Jasper is the county-seat of Walker County, with a population of 60,000, and is the largest town between Birmingham, Ala., and Tupelo, Miss. There was urgent need for some building in Jasper that would accommodate the large crowds that have come here from all parts of the county and the state to attend conventions, political gatherings, floor shows, all-day singing, athletic events, and concerts.

In 1936, the City Council, an architect, and officials of the WPA worked out a plan to use native stone and construct a municipal auditorium seating approximately 2,000 people. The plans called for a basement to take care of the heating system, provide space for a kitchen, and a banquet hall seating 300 people. The total cost of the auditorium is set at $40,000, with the city participating to the extent of $10,000.

AT LEFT, JASPER'S AUDITORIUM AND THE CITY HALL

AT RIGHT, THE COUNTY JAIL AND THE COUNTY LIBRARY

Getting the Industry Best Suited to the Community

By ASA S. KNOWLES
Head, Department of Industrial Engineering, Northeastern University

The Community Survey

To eliminate guesswork in appraising the industrial possibilities of a community, the community survey is the standard method: it analyzes industrial assets; criticizes constructively; suggests remedies for disadvantages; considers the needs of specific industrial groups; and plans a definite procedure of development.

FOR some time it has been recognized that chamber of commerce secretaries, industrial development committees, and others engaged in industrial development work need a means to accomplish their goals with least cost and greatest gain to the communities they are serving. While all appreciate that it is not possible to set forth a development procedure that will invariably assure every community the exact industry suited to its needs, —there are too many variables in every picture,—it is believed that there can be a more scientific approach to the problem from the community's standpoint. In an attempt to be of assistance in this situation, the Department of Industrial Engineering at Northeastern University conducted a research analysis and study to provide a pattern to guide those charged with this work. To accomplish this end, a Massachusetts city that is today faced with dire need of industrial development was chosen as the subject of a model survey.

Previous investigation and research pointed to the community survey* as the most practical approach to the community industrial development problem; through it the advantages of the community as a location for industrial plants are brought to light and at the same time the features are disclosed which tend to retard its industrial growth and which perhaps can be remedied. The path to be followed in making the survey was determined by combining information from many sources to formulate a model community survey pattern. Chief among these were data obtained from previous research work, and information supplied by both the New England Council and the Industrial Site Service Bureau of the McGraw-Hill Publishing Co. Recognizing the imminent need for industries in the community studied, the survey pattern was so arranged as to bring to light facts that would interest industrialists or others who might be seeking an industrial plant site in this area. In this connection, use was made of the following typical questions which the New England Council believes should be asked manufacturers in a community to find out what local conditions exist:

1. Are taxes, both local and state, fair and reasonable? If not, what should the community do to decrease or more equitably distribute the tax burden?

2. Are the public services maintained by the community necessary, adequate, and reasonable in costs?

3. Are local sources of industrial financing adequate? If not, what are the needs?

4. Is there a scarcity of buildings suitable for modern manufacturing purposes, or a shortage of houses for workers? If so, what is the local situation as to building construction costs—materials, labor, taxes, etc.—and how does it compare with that of neighboring communities?

5. Are there local shortages of labor? If so, what types? How is it suggested that these needs be met?

6. Do industries feel that they are unduly handicapped by local or state regulations?

7. Do manufacturers believe that the community understands and appreciates the extent to which its economic life depends upon the continued growth and prosperity of its industries? Do they find the community prepared to cooperate with them in solving local industrial problems?

A brief outline of the model survey pattern is presented here to demonstrate the type and extent of information which should be sought by the community desirous of facing squarely its present and potential industrial situation.

THE COMMUNITY SURVEY

A. The Community
1. Government efficiency and effectiveness
2. Conditions that have caused industries to leave
3. Advantages and disadvantages of existing industries
4. Adequacy of public services—fire, police, water, sewerage, etc.
5. Living conditions—housing, recreational, school, hospital, and church facilities

B. Labor
1. Present status and trend of population in the community and surrounding territory
2. Types of labor available for employment in various trades
3. Wages paid labor in comparison with that in similar communities
4. Attitudes, unionization, and conditions of labor

C. Markets
1. The local market
2. Distance and traveling time to principal marketing centers

D. Transportation services
1. Railroad passenger and freight service, sidings, etc.
2. Bus line and trucking facilities
3. Air and water transportation (port facilities)

E. Power sources, service, rates, etc.

F. Tax rates and assessments

G. Existing factory buildings
1. Sizes, conditions, and possible uses

H. Raw materials
1. Types and quantities
2. Transportation costs

I. Banking facilities

* Asa S. Knowles: "The Small City and Town Become Industry-Conscious"—Part II, THE AMERICAN CITY, February, 1938, page 71.

In the space available, it is not possible to show in detail every aspect of the survey as finally completed. The steps taken in carrying it out will be listed completely, however, and some of its more interesting and significant parts presented. These will be selected with a view to showing the reader examples of the scope and type of the research needed for scientific industrial development.

Conducting a Typical Study

In this particular study attention was devoted in the beginning to the past industrial condition of the city. Although it has great need for industries at present, unlike many other cities it was once a prosperous industrial center, and is still capable of supporting much greater industrial activity. This is shown by the following summary statistical tabulation based on U. S. Department of Labor reports:

ALL INDUSTRIES

No. of Plants		Amount of Annual Wages	
1924	1937	1924	1937
48	30	$3,243,902	$1,461,046
Wage-Earners		**Value of Products**	
1924	1937	1924	1937
2,668	1,560	$11,998,030	$5,404,539

Of interest also is a list compiled to show the types of industries which find manufacturing profitable in the city today. These include: shoe shops (6); heel shops (1); top lifts (1); box manufacturer (1); foundry (1); garment company (1); shoe patterns company (1); and electrical supply company (1).

The stability of labor in the city was determined by a study of the trend of population in the city since 1890; and, since it is no longer true that an industry must draw its entire labor supply from its own community, the available labor supply in neighboring towns and cities was carefully tabulated and analyzed. Through the cooperation of the Massachusetts Public Employment Service, it was possible to compile a list to show the classes and types of unemployed workers in the city. These were classified as shoe manufacturing, machine operators, comb makers, hat manufacturing, construction, textile, automobile, machinists, electrical, foundry, laundry, and welders. The detail shown below for shoe manufacturing will demonstrate to the reader the type of information needed for this part of the survey.

SHOE MANUFACTURING

Type of Work	Male	Female
Wood heelers	38	
Stockfitters	12	
Cutters:		
Trimming	13	
Block	5	
Stitchers:		
Goodyear	3	
Vampers	2	2
Shoemakers	4	

Additional information was compiled to show the extent of local markets for goods, the market area that could be conveniently served from this city, as well as the time requirements for carload shipments from the city to other principal marketing centers of the country; and the transportation facilities of the city, tax costs, available factory buildings, available raw materials, banking facilities, etc., were also studied carefully.

Purposely, those in charge of the investigation avoided any statistical summaries or comparisons of power costs, because previous investigation had shown that power costs vary with the size of the community and with the type of industry, and that any statistical compilation of costs, showing comparisons with other cities, means very little.

Summarizing the Findings

On the basis of information obtained from the foregoing investigation, the advantages and disadvantages of the city were put in summary form. Included here are the results obtained from an analysis of only four of the important factors studied. These will serve to indicate the type of data every community seriously interested in industrial development should have available for ready use.

RESULTS OF COMMUNITY SURVEY

A. The Community

Advantages:
1. Government is efficient and cooperative.
2. Concerns profitably produce for country-wide market.
3. Good public services exist.
4. Excellent recreational facilities.

Disadvantages:
1. Pessimistic attitude toward industrial development exists.
2. Welfare costs are high.

B. Labor Supply

Advantages:
1. Ample supply in and around the city for many diversified industries of steady dependable labor.
2. Prevailing wage scales are reasonable.
3. Union conditions are good at present.

Disadvantages:
1. City has reputation of previous poor shoe labor conditions.
2. Large percentage of existing labor is unskilled.

C. Markets

Advantages:
1. Near principal eastern markets.
2. City in position to supply important surrounding area.

Disadvantages:
1. City's own market limited and located at considerable distance from principal marketing centers of country outside eastern area.

D. Factory Buildings

Advantages:
1. City has vacant buildings of various types and sizes. Two are fairly modern.
2. Automatic sprinkler systems in some available buildings.
3. Rents and insurance rates are reasonable.

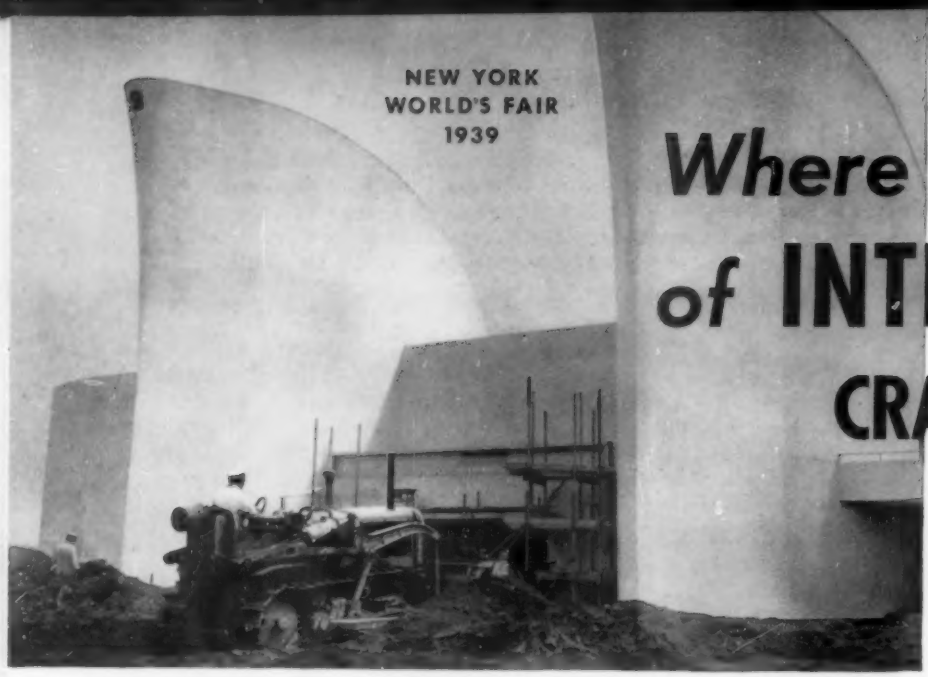
Disadvantages:
1. Available buildings not in good repair.
2. Fire hazards exist near some buildings in center of city.

In order to give meaning to the survey as prepared, a means was devised to correlate the information compiled with the plant-location requirements of particular industrial groups.* For this purpose, the factors stressed by these industrial groups in considering plant location were assigned point ratings according to the order of their importance, as designated by the industries. These ranged from 800 for the highest to 100 for the lowest; that is, the item ranked first in importance by the industries in selecting an industrial site was given 800 points, the next 700, etc. The city was awarded points on the basis of its capacity to fulfill these requirements as shown by the data obtained in the model survey.

The likelihood of the city's being able to support these industries was indicated more clearly by correlating the maximum points the city could be awarded with those actually given.

The industrial groups considered for this town were: food (bakers, makers of perishable foods, etc.), textile,

* W. G. Holmes: "Plant Location." McGraw-Hill Publishing Co., New York, 1930, page 260.



Where a Great Flee of INTERNATIONA CRAWLER TRACTOR Transformed Rubbish Dum

INTERNATIONAL is Still the Favored Powe

TWO YEARS AGO the site of the New York World's Fair was only a nightmare to all except a few far-sighted men. Then came the first great construction feat of the Fair —a relentless night-and-day job *powered by International TracTracTors.*

The Johnson-Necaro Co. shouldered a $2,000,000 contract to handle 7,500,000 yards of tangled refuse in ten months' time. Their success hinged on their fleet of International TracTracTors and bulldozers which handled 90% of the vast yardage of material coming from the shovels and dump wagons. The satisfaction of the veteran contractors had mounted to enthusiasm for the equipment by April 1 of last year when they delivered parks and lagoons where they took over the ancient dump on which Manhattan had heaped its rubbish for 40 years. That heroic ground-work job is long since complete. Now there is activity of endless and exciting variety all over the 1200-acre area. The great Fair rises to glory.

Visit the Fair in this new stage of its progress. You will find the same reliance on International heavy-duty power. Wherever there is heavy concentration of construction International tractors are on the job, powering bulldozers, shovels, and graders. Everywhere it is still a race against time, in close-figured contracts. *Maybe that's why International dominates the heavy-duty power picture out there on Long Island.*

INTERNATIONAL HARVESTER and its full line of International industrial power—wheel and crawler tractors, power units, and motor trucks—are at your service. Call on any dealer or branch.

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(INCORPORATED)
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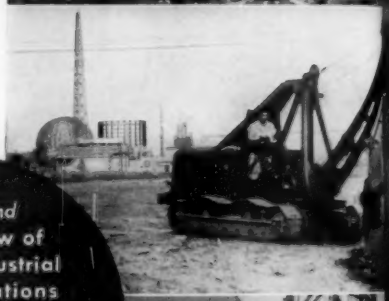

At right and above: A few of the many industrial power operations around the grounds—*International crawler tractors and International-powered equipment.*

Twelve hundred acres like this —7,500,000 yards of swamp and rubbish to handle—a $2,000,000 contract in a race against time. Here are some of the International crawler tractors in the fleet on the site of the New York World's Fair.

INTERNATIONA INDUSTRIAL POWER

lumber (principally boat building), machinery, leather, and chemical.

There follow sample tables to show the extent to which the city could hope to support these industries in terms of this method.

FOOD GROUP

Advantages	Possible Points	Points Given City
1. Markets	800	400
2. Materials	700	350
3. Transportation	600	500
4. Labor	500	250
5. Living conditions	400	400
6. Available factory buildings	300	200
7. Power	200	150
8. Near related industries	100	50
	3,600	2,300

Correlation equals $\frac{2,300}{3,600}$ — 63.9%

LEATHER GROUP

Advantages	Possible Points	Points Given City
1. Labor	800	700
2. Available factory buildings	700	700
3. Markets	600	600
4. Materials	500	500
5. Near related industries	400	400
6. Transportation	300	300
7. Living conditions	200	200
8. Financial aid	100	50
	3,600	3,450

Correlation equals $\frac{3,450}{3,600}$ — 95.8%

CHEMICAL GROUP

Advantages	Possible Points	Points Given City
1. Markets	800	700
2. Transportation	700	600
3. Labor	600	500
4. Materials	500	200
5. Available factory buildings	400	100
6. Living conditions	300	300
7. Power	200	150
8. Near related industries	100	0
	3,600	2,550

Correlation equals $\frac{2,550}{3,600}$ — 70.8%

The correlation for the industrial groups not given in detail are: lumber (principally boat building), 88.8%; machinery, 83.3%; textile, 72.2%.

On the basis of the model survey alone, one concludes that this particular community's interests are best served by developing the lumber, machinery, textile, and leather businesses. This is true only if other special considerations, such as the effect of new plants on those already existing, do not indicate other action to be more desirable.

Advantages

The community survey, however, is not rendered less valuable by this action. It is the only means by which the facts regarding a community and its potentialities, industrially, can be appraised without a large element of guesswork. Its advantages are that:

1. It makes the city analyze what it has to offer.
2. It offers a very constructive criticism and possible remedy for disadvantages.
3. It provides a means of analyzing the industrial advantages of the community in the light of the requirements of specific industrial groups, thereby enabling the city to proceed more wisely.
4. It does away with hit-or-miss methods and substitutes therefor a definite planned procedure to industrial development.

How Should Federal Relief Funds Be Allocated?

An Editorial from
The New York Times of January 2, 1939

THE PROBLEM OF RELIEF

IN the gathering Congress, at the State Conference of Mayors, and in other quarters, there is increasing evidence of a widespread tendency toward a basic reexamination of the whole problem of relief.

The subject can stand considerably more thinking through than it has so far received. This applies particularly to the amounts contributed to individual communities by the Federal Government. That these Federal funds do not belong to any Federal official or group of officials, that they are the property of the whole country, that they should be divided with the most scrupulous care to make certain that the geographical distribution is as equitable, in view of local conditions, as it can possibly be made—all this should go without saying. Yet the country still does not know on what basis, or in accordance with what formula, the allocation of these Federal funds is decided.

Some idea of the anarchy prevailing in their allocation may be gathered from figures compiled by the Community Chests and Councils of the distribution of Federal funds (WPA, CCC and NYA) among sixteen cities. The figures below represent the annual funds per capita—on the basis of total populations—allotted by the three Federal agencies to each of these sixteen cities in the calendar year 1936:

Greensboro	$6.74
Greenville	7.95
Galveston	8.87
Richmond	10.62
Hartford	11.66
Bridgeport	14.09
Providence	16.03
Worcester	18.07
Birmingham	19.21
Dayton	20.73
Indianapolis	22.09
Minneapolis	23.65
Kansas City, Kans.	24.98
New Orleans	27.30
Buffalo	29.68
St. Paul	30.97

Somehow there may be rhyme or reason in these allocations. There may be some simple explanation of why Minneapolis got twice as much per capita from the Federal Government as Hartford, why New Orleans got three times as much per capita as Galveston, why St. Paul got nearly five times as much per capita as Greensboro. But these explanations certainly do not lie on the surface, and until they have been offered the presumption must be that, however honest and well-intentioned, the allocations are just as completely arbitrary as they look.

The need for a fundamental reform of our relief system is imperative. The allocation of Federal funds cannot be left to the mere discretion of any single official or group. It should be placed upon an impersonal basis that the whole country understands clearly and accepts as fair.

DOUBLE Duty

NOW...
A SNOW PLOW
FOR THE SPEED MAINTAINER

Here's ANOTHER USE . . . ANOTHER SAVI with the Allis-Chalmers Speed Maintaine on snow removal work. Now, with a Ba snow plow, you have an all-year-'rou outfit for maintenance and snow remova an initial cost about one-third the price larger motor graders. You have an outfit pneumatic tires that is operated by only man . . . that burns only 1 gallon of gas distillate per hour . . . that works at spe of 3½ to 4¾ miles per hour and travels or more miles per hour between jobs. Y have a 16-foot turning radius for getti about in narrow going. Never before h such economy and usefulness been ava able in one machine. Regardless of yo appropriation or the scale of your oper tions . . . you have work which this Spe Maintainer will do at lower cost than a other method. Send coupon for literatu See your nearest Allis-Chalmers deal

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TRACTOR DIVISION—MILWAUKEE, U. S. A.

Maintainer with Baker plow. Cuts a path 7½ ft. wid Plow easily mounted — no hole drilling necessa

Below—
Maintaining a c playground—and Speed Maintain numerous use

SPEED MAINTAINE (including blade)
ONLY $1285
WITH SNOW PLO $1460 F.O.B. FACTORY

ALLIS-CHALMERS MFG. COMPANY
Dept. T-215, Tractor Division, Milwaukee, Wis.

Gentlemen: I want more information about your Speed Maintainer and Baker snow plow. Please send FREE descriptive literature ☐. Ask your dealer to call ☐.

Name _____
(Please Print)

City _____

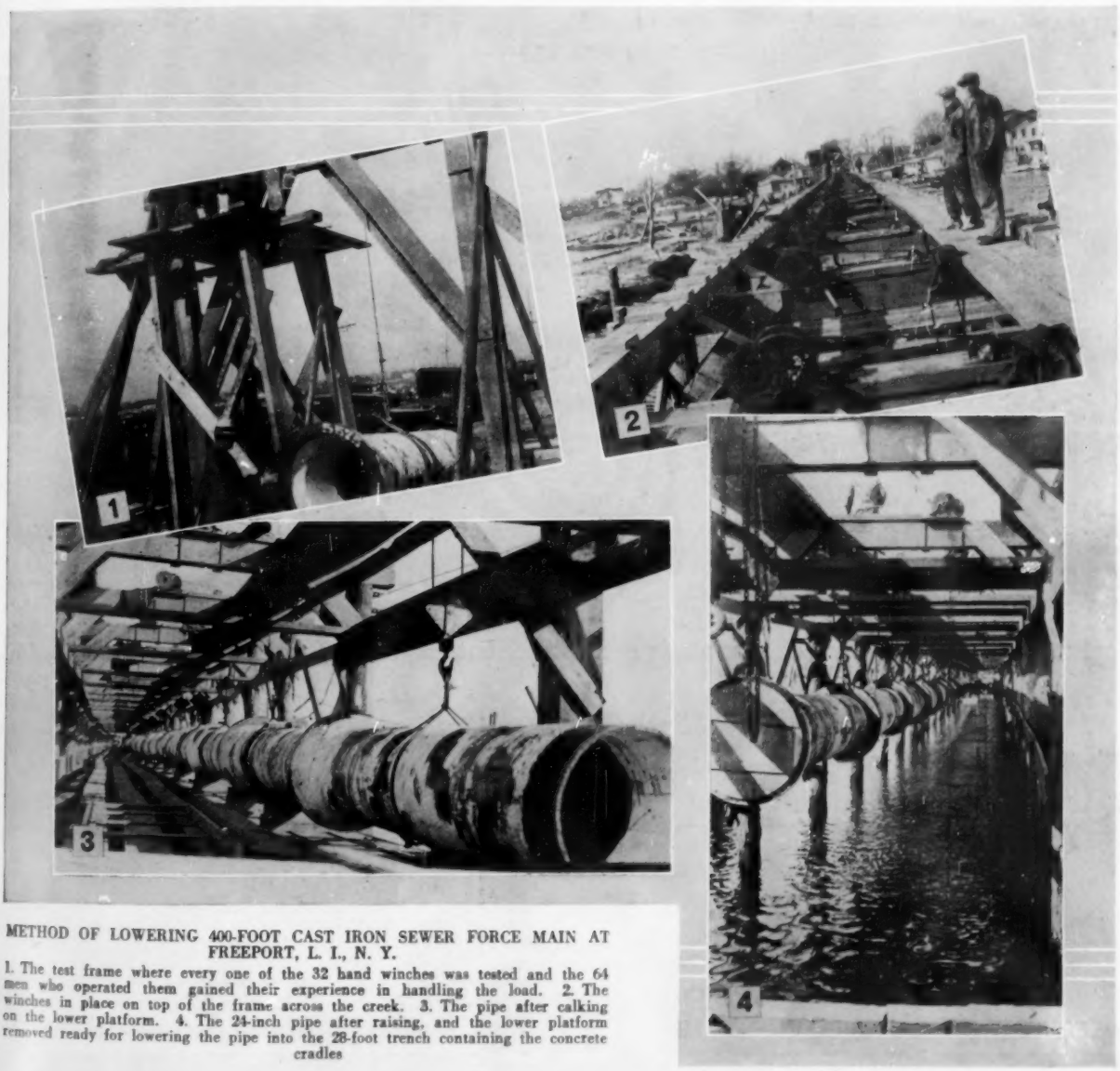
Hand Winches Lower Sewer Lines for Force Main in Freeport, Long Island

Safety of Inexperienced Labor an Important Factor

IN THE construction of a new sewer force main of 30- and 24-inch pipe at Freeport, L. I., N. Y., in the fall of 1938, several problems were solved in a straightforward, practical manner. The heavy metropolitan cast iron submarine pipe with flexible joints poured with lead had to be lowered a distance of about 30 feet onto concrete cradles in a trench in the creek bottom. All the work was done with inexperienced labor, and because of this the use of a steel cofferdam across Freeport Creek for the crossing had to be abandoned and the method described was used, saving the village several thousand dollars.

Preparation

Thirty-two Beebe all-steel hand hoists were purchased and then, in spite of the fact that the combined load to be handled by each hoist was only a fraction of its rated capacity as these 5-ton hoists had been officially tested to more than 400 per cent of their rated capacity, the officials in charge of the work erected a timber test frame where every one of the winches was tested by raising and lowering a length of pipe. This also gave the inexperienced men a chance to understand how the winches worked.



METHOD OF LOWERING 400-FOOT CAST IRON SEWER FORCE MAIN AT FREEPORT, L. I., N. Y.

1. The test frame where every one of the 32 hand winches was tested and the 64 men who operated them gained their experience in handling the load. 2. The winches in place on top of the frame across the creek. 3. The pipe after calking on the lower platform. 4. The 24-inch pipe after raising, and the lower platform removed ready for lowering the pipe into the 28-foot trench containing the concrete cradles

Lithographed on stone by James E. Allen for U. S. Pipe & Foundry Co. Copyright 1939, U. S. Pipe & Foundry Co.

Beginning the eighth year of cumulative evidence that Super-de Lavaud Cast Iron Pipe, produced by a revolutionary method whereby gray iron is *centrifugally cast in a metal mold without chill*, has extraordinary toughness, ductility and resistance to impact.

U.S.
cast iron
PIPE

United States Pipe & Foundry Co., Burlington, N. J.

Plants and Sales Offices throughout the United States

Every one of the 64 men who worked on the job was required to operate the winches by raising and lowering one length of pipe several times to get the feel of the winches. The larger pipe weighed 5,575 pounds per length.

Installation

A trench 28 feet deep was excavated across the creek bottom by a small sand suction dredge, and then concrete cradles were set in place by divers to receive the pipe. A heavy timber trestle, as shown in the illustrations, was built, the pipe was assembled on the lower platform of the trestle and the joints were made.

The 32 Beebe hand winches were set about 8 feet above each length of pipe on a special bed plate bolted to a 12 x 12-inch timber across two piles of the trestle. A sheave wheel was used to lessen the load of the pipe on the winches. The assembled pipe was raised several inches off the platform so that the lower platform could be removed. The pipe was then lowered very slowly with one man at the brake and one man at the handle. The winches were not dogged during the lowering of the pipe, but the brake was kept on.

The use of two men to each hoist, while it worked satisfactorily, is not the usual practice for safe lowering with any hand-operated hoisting equipment, since one man on the brake and one on the handle divides the control of this equipment just as in the case of one man steering a car and another controlling the accelerator.

This work was accomplished safely and at a saving by the village of Freeport, using WPA labor, with Herbert M. Wood in direct charge and George W. Sammis in charge of the entire construction of the Freeport Creek crossing. Baldwin & Cornelius Co. were the engineers for the village.

Small-Town Paving Project Eliminated Inconvenience to Citizens

Marcus, Iowa, Paves 75 Per Cent of All City Streets in $165,000 Program

MARCUS, a town of 1,200 inhabitants in northwestern Iowa, has just transformed its street system from one of dust and weeds into one of clean, hard-surface pavements. While the job was being done, the town put in sidewalks, driveways, curbs, and gutters—sidewalks over which roller skates ride smoothly, driveways that flare widely to permit easy access to garages, curbs and gutters over which neither bikes nor baby-buggies bump, and against which pedestrians do not stumble.

When the town started its paving program late in 1937, with PWA aid, it secured the services of a consulting engineer to see that the work was properly done.

On the theory that property owners do not wish their front yards made unsightly through heavy grading, the existing grades of yards, walks, parking strips, and sidewalks were made the governing factors in determining profiles. Sidewalks laid out to fit lawns were plotted on preliminary layouts, together with street centerline profiles. The latter were modified as thought necessary. Once grades were established, not one was changed.

Driveway entrances were flared to give almost twice the usual width. Along the curb line they varied between 18 and 20 feet. Access to garages was easy from either direction.

Sidewalks were built to run into the pavement at street grade. The valley gutters at intersections are unusually flat. The concrete finishing at each intersection was carefully supervised to assure both good drainage and easy riding qualities. In some cases, drainage was reversed through one block, or catch-basins were located in the center of the block so that the plan of keeping street elevations harmonious with front yards could be followed.

The paving project covered about 75 per cent of all streets within the corporate limits. Sixty-three blocks were paved with reinforced concrete during the spring and summer of 1938. With 11 blocks constructed in 1937, the total for the town is 74 blocks of such reinforced concrete pavement. The streets are mostly 25 feet wide between curbs, with some 30 and 36 feet wide. Fourteen-foot concrete pavement aprons front two churches and the high school.

Since practically every parcel of land abuts some street improvement, only one class of assessment was made. A typical residence lot with a small house is assessed between $3.00 and $3.50 per front foot, payments being spread over a ten-year period. This amounts to about $15 a year per 50-foot lot, on the average. The total cost of the 1938 project was approximately $165,000, 40 per cent being a grant from PWA. The town's 60 per cent share was financed by special assessment bonds, many of them being taken by the contractor as part payment.

LOCUST STREET, MARCUS, IOWA, A 25-FOOT RESIDENCE STREET PAVED WITH 7 INCHES OF CONCRETE, IS TYPICAL OF THE 100-BLOCK PROGRAM COMPLETED IN 1938

BIG JOB WANTED — Strong, capable, tireless worker wants many-sided city job demanding all-round usefulness, with twenty-four-hour going if necessary. Can do most anything — bulldoze dirt, rubbish, garbage; load rock and gravel; haul wagons, scrapers; push snow-plow; help clean ditches, maintain roads, parks, playgrounds, airports. Can save money for taxpayers through low operating cost and keeping busy. *"Caterpillar" Diesel Tractor, care any "Caterpillar" dealer.*

Give this willing worker a chance

"Caterpillar" Diesel D4 Tractor, equipped with K-B Master trail-builder, leveling ground for parking lot near the "Rose Bowl," Pasadena, Calif. Works 8 hours a day on 2 gals. of 6c fuel per hour.

"Caterpillar" Diesel D6 Tractor and Speeder tractor-shovel loading blasted ledge rock on a road job at Portland, Me. Handles 200 tons per 8-hour day on 2 gals. of 6c fuel per hour. Saves 20c per ton over former method of doing this work.

A "CATERPILLAR" Diesel Tractor will prove itself a mighty earner on any city's payroll — and reflect credit on the city management. From Portland to Pasadena — from Manitoba to Mexico — "Caterpillar" Diesel Tractors are handling innumerable tasks for scores of cities, counties and municipalities. Everywhere the word is going around about the versatility, low operating cost, and capacity for punishing work these sturdy, modern, precision-built tractive units are proving day, week and month after month. . . . For "Caterpillar" Diesel Tractors can keep busy the year round. Few investments in city equipment can return so much per dollar!

POWER YOUR CITY FOR SAVINGS — *with "Caterpillar" Diesel Tractors, "Caterpillar" Diesel Auto Patrols, "Caterpillar" Diesel Engines.*

CATERPILLAR TRACTOR CO. • PEORIA, ILLINOIS

CATERPILLAR

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DIESEL ENGINES (9 sizes) • TRACK-TYPE TRACTORS (5 sizes) • ROAD MACHINERY

SHOWING THE WAY TO OPERATE A FIRE-ALARM BOX

What Milwaukee Fights Fire With

By PETER STEINKELLNER
Chief Engineer, Fire Department, Milwaukee, Wis.

THE city of Milwaukee has reasonably good coverage on the placing of fire-alarm boxes, except for a recently annexed sparsely settled territory. They are a block apart in high-value and densely populated areas.

We make sure that our people know how to use these boxes. During fire prevention week, the two types used in this city are set up at various public locations, and uniformed firemen operate them. The boxes are also mounted on a piece of fire apparatus and taken to the public and parochial schools and to manufacturing plants. We reach 185,000 children and adults each year. Annual demonstrations are given also at the Food Show and at our October Fire Prevention School.

What happens when a box is operated in earnest is indicated by the following line-up of our apparatus:

	In Service	On Reserve
Pumpers and combinations	34	7
Aerial ladders	3	1
Service ladders	12	3
Special duty apparatus		
Boat wagons	3	1
Water tower	1	—
Rescue squad wagon	2	—
Fireboat	2	1
Maintenance trucks	3	2
Total	60	15

Of this total of 75 pieces, 30 or 40 per cent are more than 15 years old—19 pumpers and 11 ladder trucks. Lack of finances has precluded the replacement of any apparatus since 1931. It will be observed that our ratio of reserve to active apparatus is 1 to 4, or twice as good as the National Board of Fire Underwriters recommends.

On the interesting subject of enclosed apparatus—we are not convinced that this type is needed here except for reserve squads which travel far and save lives.

In Milwaukee, the Central Purchasing Board, of which the Mayor is Chairman, buys our fire equipment on specification approved by the Chief Engineer of the Fire Department.

OBVIOUSLY, FIRE-ALARM BOXES MUST BE EASILY VISIBLE, SAYS THE GAMEWELL COMPANY—
The box in the left-hand picture certainly is not easily visible, whereas the one at the right, being mounted on a distinctive post, is conspicuous even among the other signs and poles

HARRISBURG

PENNSYLVANIA

DOUBLES

THE

ORDER

Underwood & Underwood

Another *"Blue Ribbon"* for KARPARK!

In December, 1938, Harrisburg, the capital of the Keystone State, attested to the superiority and dependability of KARPARK AUTOMATIC METERS by more than doubling the original number of KARPARK installations made nine months before, in April.

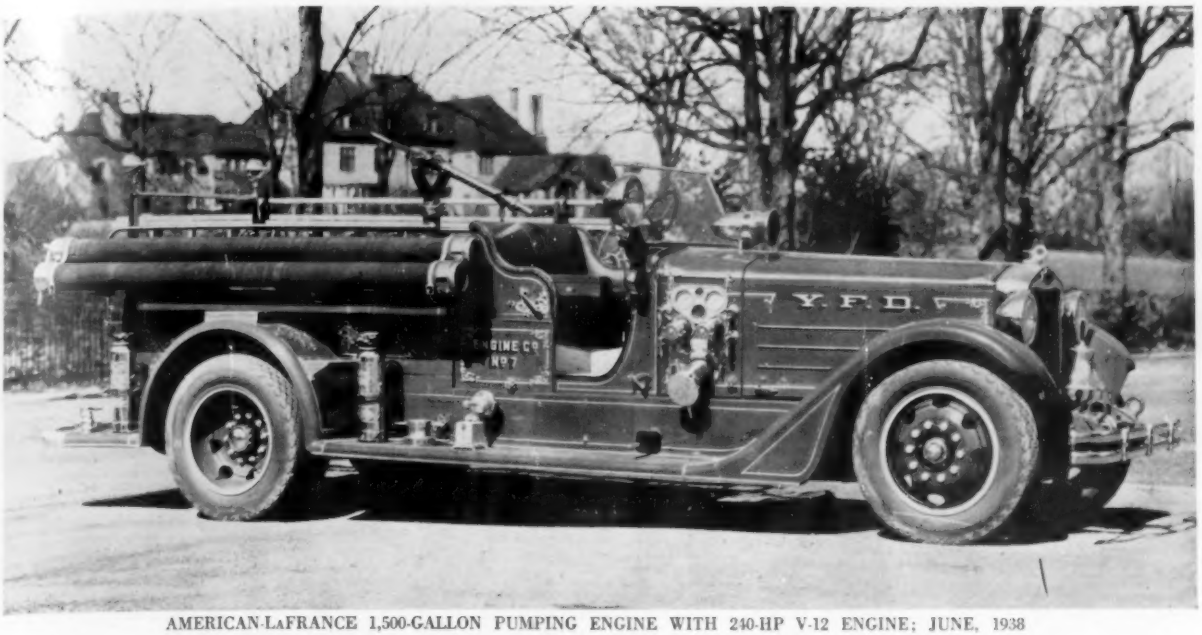
This makes the third important city in as many months to install KARPARK AUTOMATIC METERS after thorough and rigorous tests. These facts lead to the inevitable conclusion that KARPARK AUTOMATIC is the "thoroughbred" of parking meters.

GRAYBAR ELECTRIC CO., who for 70 years has distributed high-grade products, guarantees KARPARK METERS and distributes them from 83 cities in the United States.

Write or wire The Karpark Corporation for a detailed explanation of what KARPARK will do for your city.

DO IT TODAY!

THE KARPARK CORPORATION
420 Lexington Avenue · New York, N.Y.



AMERICAN-LaFRANCE 1,500-GALLON PUMPING ENGINE WITH 240-HP V-12 ENGINE; JUNE, 1938

Half of Yonkers Fire Apparatus Less Than Four Years Old

By JOHN J. REILLY
Chief, Bureau of Fire, Yonkers, N. Y.

YONKERS, N. Y., has a population of 150,000, an area of 22 square miles, and per capita fire losses of $1.059 in 1935, $0.956 in 1936, and $1.019 in 1937. One of the State Regional Training Schools is located under the jurisdiction of the Yonkers Fire Department.

In the early summer of 1938, we placed in service four combination fire engines equipped with booster and 100-gallon water tank. Shortly after, we installed an 85-foot hook-and-ladder truck, tractor type.

On April 8, 1937, we replaced some of our older apparatus with one 1,500-gallon pumping fire engine, two 1,000-gallon pumping engines and one city service truck. These purchases took the place of chemicals and pumping fire engines bought in 1914 to 1917.

It will be seen from the listing of all our present apparatus that, with the exception of a chemical hose wagon and two 1,000-gallon pumpers, all the pieces date since 1926 and only six vehicles are more than eight years old.

Our personnel consists of: Chief of Department, 2 assistant chiefs, 18 captains, 18 lieutenants, 1 secretary, 1 surgeon, 1 lineman, 1 assistant lineman, 1 Central Office electrician, 1 apparatus mechanic, 1 anhydrous ammonia mechanic, 139 firemen, a total of 185 men.

NUMBER	AMERICAN-LaFRANCE APPARATUS	INSTALLED
	PUMPERS	
4	Combinations with boosters	1938
1	1,500-gallon	1937
2	1,000-gallon	1937
1	1,000-gallon	1936
3	1,000-gallon	1929
1	1,000-gallon	1921
1	Rescue squad car	1929
1	Hose-chemical truck (spare)	1917
1	Foamite apparatus	1917
	HOOK AND LADDER TRUCKS	
1	85-foot, tractor type	1938
1	City service truck	1937
1	75-foot, tractor type	1935
1	85-foot, tractor type	1929
1	85-foot spare	1927
	AUTOMOBILES	
1	Chief of Department (Buick)	1933
2	Asst. Chiefs (Chrysler)	1937
1	Repair shop (Ford)	1935
1	Lineman (Chevrolet)	1935
1	Electrician (Ford)	1931
1	Repair shop (Chrysler)	1928

NEW HAVEN, CONN., OWNS A GAMEWELL FIRE ALARM SYSTEM, 13 HOSE WAGONS, 13 PUMPING ENGINES, 3 TRIPLE-COMBINATION PUMPS AND WAGONS, 2 CITY-SERVICE LADDERS, AND 4 AERIAL LADDERS—INCLUDING THIS SEAGRAVE HYDRO-AERIAL TRUCK WITH CANOPY CAB SHOWN AT RIGHT.—LAWRENCE E. REIF, CHIEF, DEPARTMENT OF FIRE SERVICE, NEW HAVEN

KEEPS *Everybody* HAPPY

"Three Months Experience. AUSTIN-WESTERN Patrol Sweeper Entirely Satisfactory. Cost Reduced Seventy-Five Per Cent and Mileage Increased Ten Times."

"We Are Now Using Three A-W Patrol Sweepers. They Are Most Satisfactory in Every Way."

● It's none too early to make plans for quick, thorough removal of the unsightly debris that Winter's snow, sleet and smoke-ladened air are depositing on your business and residential streets. The new A-W Patrol Sweeper will solve this problem . . . rid your streets of cinders, sand, other sewer clogging debris and germ-ladened dust . . . AT SUBSTANTIAL SAVINGS OVER FORMER STREET SWEEPING COSTS.

An A-W Patrol Sweeper pays big community dividends month-in and month-out. This low priced, fast-sweeping machine benefits everybody. It saves money for taxpayers, stimulates trade and civic growth, promotes health and safety by making thorough street cleaning possible at a cost any community can afford.

Join the fast mounting number of communities that are solving their street cleaning problems with the Austin-Western Patrol Sweeper. Have one on hand for 1939 Spring street cleaning . . . to keep your streets immaculate for years to come.

Austin-Western Sweepers Handle All Dirt and Trash, Large or Small, Wet or Dry, on All Surfaces—They Sweep Clean Up-Hill or Down-Hill

The AUSTIN-WESTERN
ROAD MACHINERY CO., Aurora, Illinois

Motor Graders
Roll-A-Planes
Rollers
Snow Plows
Crushing and Screening Plants
Washing Plants
Blade Graders
Motor Sweepers
Shovels and Cranes
Bituminous Distributors
Elevating Graders
5-Yard Single Cable Scraper
6-Yard Single Cable Scraper
8-Yard Single Cable Scraper
12-Yard Hydraulic Scraper

Mention THE AMERICAN CITY—it helps.

Trolley Buses, Trolley Coaches, or Buses?

A Few Responses to The American City's *November Transportation Article*

How Dallas Maintains Good Service

Dallas, Texas.—Naturally, I read the November issue of The American City, featuring modern city transportation, and I found it tracked the situation here in Dallas pretty well.

The Dallas Railway and Terminal Co., a subsidiary of the Electric Power and Light Co., which in turn is owned by the Electric Bond and Share Corporation, is the operating company in Dallas, without competition. The franchise is indeterminate, adopted in 1917 by vote of the people. Under the franchise, it is presumed that rates either rise or fall, with municipal approval, in proportion to the financial success of the company.

This company has a property value approximating twelve millions of dollars, all of which has been built, dollar by dollar, under the scrutiny of this office. Like most street-railway properties, it has had pretty terrible financial stress for ten years, and by agreement with this office pays no dividends, either preferred or common, and has been placing its corporate earnings back into the property in the way of rebuilding extensions and providing new equipment. The original franchise fare was 5 cents, with free universal transfer. Today the fare is 6 cents token, 7 cents cash, with free universal transfer. When I came into office 3½ years ago, the company was pleading for an increased fare and was more than three-fourths of a million behind in its maintenance program. It has not received the fare increase, but its arrangement to rebuild the property, rather than pay dividends, has had a wholesome effect, and today Dallas has the best street-railway transportation in the South, and one of the best services in the country. The maintenance program has been caught up completely, and more than a million dollars in new equipment has been purchased and paid for in cash, since the company has no credit. The company has always met its fixed charges of tax and bond requirements.

We are in the midst of an interesting gradual conversion from street-car to bus operation. Our largest buses are 36-passenger, and there are several of the 25-passenger type on the feeder lines. Under the franchise, the company takes care of paving between the tracks and two feet on either side, and is paying up a $3 annual tax per seat for all buses in use, less 10 per cent for equipment not in service.

There is room for some expansion and extensions in Dallas. We could use 50 more buses and should like very much to see at least 15 to 20 P.C.C. cars placed in operation.

What will make this new equipment available? One possibility is a loan from the holding company or one of its affiliates. The program we are following is to use all corporate earnings in rebuilding the property. In my judgment, we can look for an expenditure of not to exceed $300,000 per year in new equipment and property extensions.

Joseph F. Leopold,
Supervisor of Public Utilities.

How Transit Vehicles Reduce Congestion

Fort Wayne, Ind.—This city has one street-car company, the Indiana Service Corporation, with lines leading in all directions to and from the "transfer corner" situated in the central business district. The company has a large investment in its plant and equipment; times have been none too good in recent years; there seems to be a growing demand over the country for the modern public-carrier vehicles, including large, fast, noiseless street cars, described and illustrated in the November issue of The American City.

The public attitude toward the company is favorable. The only criticism one hears is about the noise the cars make; and this criticism comes from proprietors of business establishments as well as from homeowners.

The best means to employ to prove and illustrate the fact that street-traffic congestion could be relieved by automobile owners' making more use of public-carrier vehicles, would be to reproduce in the newspapers of every city in the United States the picture on the cover page of the November, 1938, issue of The American City; and then follow up with a similar article each week. True, this would be good advertising for the public-carrier vehicle companies, but it would help to relieve street-traffic congestion, which is coming to be intolerable.

Building more homes on the outskirts of the city, extending car routes, modernizing equipment, molding a public sentiment in favor of automobile owners' making more use of public-carrier vehicles, financing betterments at present-day low rates of interest, might tend to make our local transportation company more prosperous. The street-car service here is popular, owing largely to the politeness of the employees of the company, and to the company's liberal weekly pass system. On Monday, as one gets on the street car, he can buy for one dollar a pass that is good for the entire week: no limit as to the number of rides; no names on the pass; no punching of the pass by the street-car operator, except those passes issued to school children who are given a reduced rate; no questions asked as to whether you own the pass or borrowed it for the occasion. All you need to do is to show the pass to the motorman when entering the car, and then take your seat. But don't hand the pass out of the window to a friend, for the rule is that you must have it in your possession while on the car. However, there is little need for this rule and practically no attention is paid to it.

Robert B. Hanna,
Consultant, City Plan Commission.

City and Company Are Modernizing Transit

Sacramento, Calif.—Your special city transportation section, using photographs with short descriptions, impressed me as being a very striking manner in which to present these problems to the public.

In Sacramento during the last few months, we have been negotiating with the Pacific Gas & Electric Co. toward providing better service for our citizens. On November 21 and 22 a public hearing was held in Sacramento before the California State Railroad Commission upon the application of the Pacific Gas & Electric Co. to make changes in the transportation system along lines discussed by the City Planning Commission and representatives of the company. The Pacific Gas & Electric Co. now operates seven street-car lines in Sacramento, having a total of 26.15 miles over which 45 street cars are in regular service. In addition, the company operates ten bus lines with 36.05 miles of route, and 22 buses with a capacity of from 22 to 45 passengers.

Rapid growth in certain sections of our city now requires system revisions, which the company proposes as follows: that 34 street cars be operated over 16.87 miles of rail routes and 36 gasoline motor coaches over 38.1 miles of route. The company would retire 11 street cars and add 14 modern motor coaches seating 27 passengers each.

I believe the best manner of approach toward the question of suggesting to the automobile public that it make use of street cars and buses, is (1) through an appeal toward a saving in money, (2) safety to patrons, and (3) quick service rendered.

H. H. Jaqueth,
Planning and Traffic Engineer

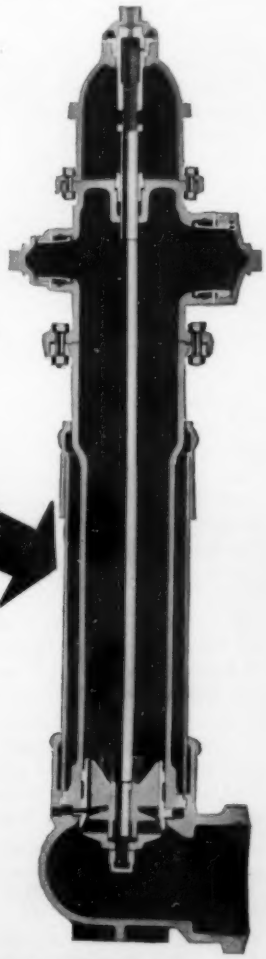
This unique Sliding Protection Case makes

Mathews Hydrants Defy Frost-heave

Here is a construction which saves time, money, and water during any cold winter. For the Mathews "protection case" is designed and installed to absorb all the thrust that frozen ground exerts as it heaves upward. Instead of cracking the castings or breaking the hydrant loose from the main, frost simply lifts the protection case, while the water-carrying parts are left entirely free from strain. No expensive digging, no expensive replacements, no expensive water losses. Sure fire protection right through the coldest winter.

THE PROTECTION CASE rests loosely in the elbow. It provides a protective sleeve which is free to lift with frozen ground, and a permanent opening through which the barrel may be removed.

THE BARREL, containing all operating parts, screws into the elbow to form the complete water-carrying hydrant, yet it can be unscrewed and lifted out through the protection case.



Other advantages of the MATHEWS SLIDING PROTECTION CASE

It lets you "change hydrants" as you'd change a tire.

Therefore: Traffic-smashed hydrants can be repaired without digging.

Emergency repairs can be made in the shop without interrupting fire protection.

60-year-old hydrants can be completely modernized without digging.

Grade changes can be made up or down without digging.

Write for full details.

MATHEWS HYDRANTS

Made by R. D. WOOD COMPANY

Manufacturers of Sand Spun Pipe (centrifugally cast in sand molds) and R. D. Wood heavy-duty gate valves for water works

400 CHESTNUT STREET, PHILADELPHIA, PA.

Forward Steps

Reported by Municipal Officials, Chamber of Commerce Executives, and Others

Another Forward Step in Parkway Development in the Metropolitan Area

BABYLON, L. I., N. Y.—The completion, and dedication on December 17, of the Northern and Wantagh State Parkway Extension in Nassau County marks an important milestone in the development of the unified networks of parkways in the metropolitan area. This new 10-mile project provides an urgently needed connecting link between the two east-west parkways extending from Brooklyn and Queens into Nassau County, and establishes a direct all-parkway route from the Triborough Bridge in New York City to Jones Beach State Park. Beginning at the present easterly terminus of the Northern State Parkway at Glen Cove Road, the new parkway continues easterly through the village of Westbury to Union Avenue and then turns south, as the Wantagh State Parkway Extension, to connect with the Southern State Parkway and the Wantagh State Parkway to Jones Beach. Thus the new project becomes an integral part of the comprehensive system of arterial parkways in the metropolitan area.

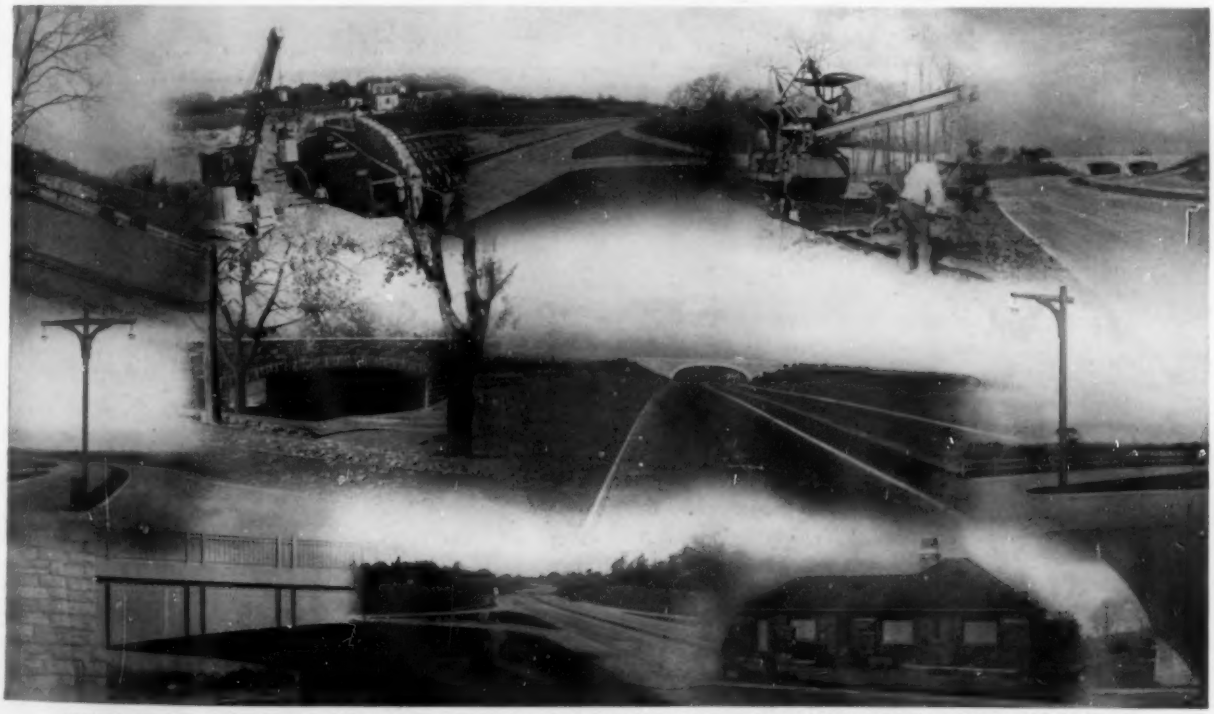
Completed in eighteen months—three months ahead of schedule—the new parkway with its eighteen grade separation structures embodies the latest features in the design of safe arterial thoroughfares. Twin roadways, each 25 feet wide, separated by a 9-foot center mall, with exits and entrances designed to permit smooth uninterrupted movement of through traffic, will provide the motoring public with a direct landscaped route, free of crossings at grade, from the heart of New York City—and the World's Fair—to Jones Beach State Park.

110 *Miles of Completed Parkways*

Since the inception of the parkway program by the Long Island State Park Commission in 1926, its development has progressed steadily and consistently. The first project—the Southern State Parkway through Hempstead Lake State Park, north of Rockville Centre—was completed and opened to traffic on November 6, 1927. In the eleven years that have elapsed, a total of 110 miles of parkways and 191 grade eliminations in New York City and Long Island have been completed.

The completed parkways include the Henry Hudson along the Hudson River from 72d Street to the Saw Mill River Parkway at the Westchester County line; the southerly extension of the Hutchinson River Parkway through Pelham Bay Park, from which point it will be carried to the Bronx-Whitestone Bridge, which is scheduled for completion in June, 1939; the Grand Central Parkway from the Triborough Bridge in Queens to the Nassau County line with the Interborough Parkway branching off at Kew Gardens to Jamaica Avenue, Brooklyn; the Marine Parkway and part of the Shore Parkway in Brooklyn; the Northern, Southern, Meadowbrook, Wantagh and Bethpage State Parkways in Nassau County, and the Ocean Parkway in Nassau and Suffolk Counties.

Those of us who laid out the parkway program almost fifteen years ago had no illusions as to the tremendous task ahead of us. The need for modern arteries of travel, including recreational facilities, had become a pressing, vital factor in the orderly development of the whole metropolitan area. To have delayed these necessary public improvements would have been a major civic blunder, and we cannot exaggerate the intolerable conditions which would have developed had there been any further delay in advancing the arterial parkway program to meet the traffic problem created by the sharp increase in motor-car



CONSTRUCTION AND COMPLETION VIEWS OF THE NEW PARKWAY PROJECT, LONG ISLAND STATE PARK COMMISSION

SPECIFY STREAMLINE

TRADE MARK REG. U. S. PAT. OFFICE

COPPER PIPE AND FITTINGS

- *Rust Proof*
- *Vibration Proof*
- *Corrosion Proof*
- *Clog Proof*
- *Leak Proof*

● When your plans call for pipe and fittings on new work, remodeling city projects or for water service lines, investigate STREAMLINE Copper Pipe and Solder Fittings before you decide.

STREAMLINE compares very favorably in cost with ferrous pipe, yet, with the exception of abnormal soil and water conditions, it never has to be replaced due to rust or clogging. The pipe joint is actually the strongest point in the line—constant vibration, resettlement of the fill, etc., has no effect upon it.

STREAMLINE Service Pipe (Type K) is the original copper service pipe, and the first to be produced in America for water service work. It is the most uniformly soft and pliable pipe possible to obtain—it is kept that way through the use of the best copper obtainable for the purpose and through strict laboratory control through every phase of its manufacture.

STREAMLINE Fittings and Type K Copper Pipe are the ideal materials for water works use; for many applications in filtration plants; in aeration lines and in heating coils using the sludge digestion system in sewage disposal plants—and for all general plumbing and heating purposes.

The Mueller Brass Co., Port Huron, Michigan were the first to originate Copper Service Pipe in America. This product has always been made by this Company at Port Huron, Michigan. For identification purposes the pipe is marked every few inches throughout its length as illustrated here.

●

TYPE M PIPE IS MOST GENERALLY USED FOR CONSTRUCTION PURPOSES; TYPE K FOR WATER SERVICE WORK.

COPPER PIPE PLUS BRONZE SOLDER FITTINGS PRODUCE THE MOST PRACTICAL PIPE-JOINT

STREAMLINE
PIPE AND FITTINGS DIVISION
MUELLER BRASS CO.
PORT HURON, MICHIGAN

production and travel.

Today, we are well on our way toward a sensible solution of this problem in the metropolitan area. The 110 miles of completed parkways, the Triborough Bridge, Henry Hudson, Whitestone, and other bridge projects, the new 36-mile Circumferential Parkway project now under construction in Brooklyn and Queens, and the many other improvements completed, under way, or planned, have established a pattern for an unparalleled arterial system made possible by the cooperation of the Federal, state, city, county and other authorities that have provided the necessary lands and funds to carry these projects forward.*

ROBERT MOSES,
President, Long Island State Park Commission.

Glendale Rids Itself of an Election Hang-Over

GLENDALE, CALIF.—"Good work, fellows!"

This was the unanimous official and popular verdict of the city of Glendale on the vigorous post-election clean-up conducted last fall by the carriers of the *Glendale News-Press*.

down the posters along their respective routes. His offer was promptly accepted.

Needless to say, the newsboys themselves hailed the clean-up campaign with delight, particularly with the prospect of a reward in the form of ice cream and other refreshments. Each boy armed himself with a claw-hammer and a putty knife and fell to his task with enthusiasm. It developed into a lively game, the boys competing among themselves for the honor of bringing in the greatest number of posters.

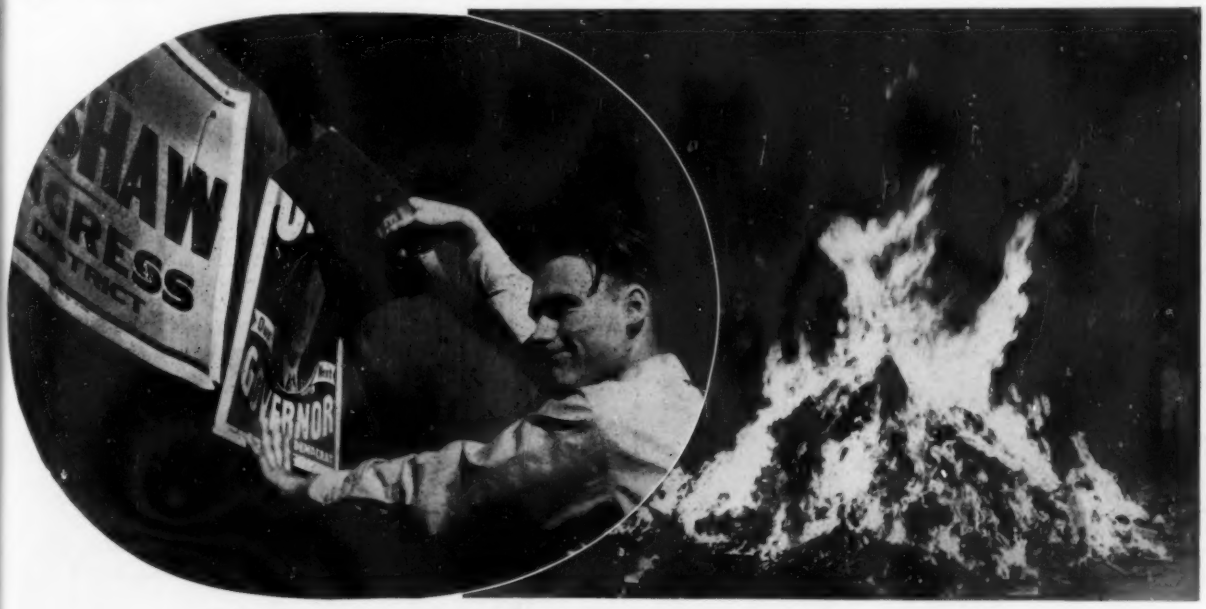
Where the posters were on public property, the boys tore them down immediately, without asking for permission; where they were on private property, permission was obtained from the occupants before removing the signs. The drive lasted four days, the boys devoting the entire final two days, Saturday and Sunday, to the work.

At the end of the drive, not a single poster or placard remained to remind Glendale of the political battle waged during the preceding months. It had been one of the most complete and effective clean-ups devised in the community. According to the count of W. E. Burhle, circulation manager of the *News-Press*, the boys had collected over 4,000 pieces of political advertisements.

To dispose of this vast collection, a celebration in the form of a huge bonfire was staged in a vacant lot. It was attended not only by the excited newsboys, but by many curious passersby. The pile of posters, eight feet high, was sent up in flames by one of the carriers, Jerry O'Steen, who had won the honor by bringing in the greatest number of posters. While every one cheered and the boys enjoyed their promised refreshments, the drive was officially ended.

This display of civic interest by the youths was lauded not only by grateful city officials, but by the general public, who were delighted that they would not be confronted at every turn with persuasive arguments and glowing election promises, many of which, in the gray dawn of the political "morning after," had lost all significance, to say the least.

EDITH KENT.



TEARING DOWN AND BURNING POLITICAL POSTERS AFTER THE ELECTION IN GLENDALE

Shortly after the election, W. S. Kellogg, publisher of the *News-Press*, observed the unsightly aspect presented by the thousands of campaign posters and placards left hanging in conspicuous spots throughout the city. He appealed to city officials to have them removed. He was informed that the city could not undertake the expense involved in work of this kind. Mr. Kellogg then offered the services of his 160 carrier boys, who, he said, would undoubtedly be glad to take

* EDITORIAL NOTE.—The front cover of this issue of THE AMERICAN CITY, the group of photographs on page 77, and the statement by Commissioner Moses are reproduced from a handsomely illustrated brochure issued by the Long Island State Park Commission in connection with the dedication on December 17, 1938, of the Northern and Wantagh State Parkway Extension.

Hugo's Community Auditorium and Swimming Pool

HUGO, COLO.—A community auditorium and a swimming pool, completed recently by a group of WPA workmen, was dedicated in November with special ceremonies here. Participating in the dedication were Governor Teller Ammons of Colorado and Paul D. Shriver, State Administrator of the Works Progress Administration in Colorado.

The two projects involved the expenditure of $56,791 in Federal and sponsor funds, contributed by Lincoln County school district No. 1 and the town of Hugo. Of this amount, $36,700 was spent for labor and the rest for materials.

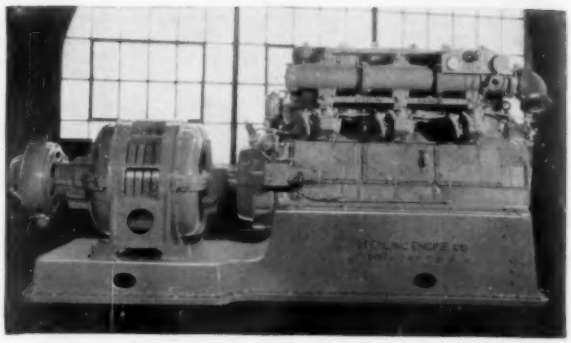
Styled in modern architecture, the auditorium will be used for community and school affairs. The interior is finished in black and white. The building has a seating capacity of 1,200 and may be converted into a gymnasium by removing the lower floor seats. Balconies are located on three sides of the auditorium, which includes stage facilities. Dressing rooms are provided.

The building was constructed of adobe blocks and reinforced concrete. White stucco was used in finishing the exterior. Similar construction was followed in erecting the 22 x 50-foot bath-house at the outdoor concrete swimming pool. This structure is complete with shower and dressing facilities.

The plunge, 45 x 100 feet, is surrounded by a 5-foot adobe wall. Within the enclosure is a 12 x 23-foot wading pool for the use of children. Included in the bath-house is a heating plant for

UNDERWRITERS' LABORATORIES APPROVED

All Sterling gasoline engines, equipped with minor specialties, are approved by Underwriters' Laboratories—making the engines available for installation in large buildings, protecting elevator and lighting service, when outside power is interrupted.



200 K.W. General Electric Generator, driven by Sterling Viking 6-cylinder 425 H.P. 1200 R.P.M. gasoline engine for emergency.

Quick-starting Sterling Engines have been especially developed for standby or emergency service.

STERLING ENGINE COMPANY

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900 Chrysler Bldg.,
NEW YORK, N. Y.

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MAIN TO CURB IN COPPER? . .

Hays has worked with hundreds of communities adapting the Hays Copper Service Method to meet all kinds of conditions. The recognized advantages of copper services are now so well known that it is only a question of how can they be adapted to meet your service piping with the least change over expense. Hays has the answers backed by a nation-wide experience. Put this Hays experience to work for your city by writing for Hays recommendations to meet your needs.

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PLUMBING BRASS
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IRON PRODUCTS
TAPPING MACHINES

The EDDY Hydrant

Eddy Fire Hydrants have many points that appeal to water-works men. For example:

A damaged valve can be replaced in a few minutes at slight expense.

Should the standpipe be broken, not a drop of water need be lost.

All hydrants are frost-proof.

These and many other points of excellence are thoroughly explained in our catalog, which it will pay you to study.

Also manufacturers of the well-known Eddy Valves

EDDY VALVE COMPANY

WATERFORD **NEW YORK**

Representatives
Jas. B. Clow & Sons, Chicago, Ill.
National Cast Iron Pipe Co., Birmingham, Ala.

COMMUNITY AUDITORIUM AND SWIMMING POOL, HUGO, COLO.

maintaining the temperature of the water in the swimming and wading pools.

Located in the east part of Hugo along United States Highway 40, the swimming facilities are expected by townspeople to prove a tourist attraction as well as offering recreation for residents of the district.

Suggested Uniform Act for Roadside Development and Control

WASHINGTON, D. C.—Recognizing the urgent need for legislation to conserve roadside beauty and to protect the health of the traveling public, a special committee of the American Automobile Association has drafted a Suggested Uniform Act for Roadside Development and Control, a copy of which will be sent to any reader of THE AMERICAN CITY on application. This measure has as its primary objectives:

(a) Elimination of unsightly structures along the highway.

(b) Prevention of further commercial encroachment in the future.

(c) Regulation of the appearance and sanitary conditions of all roadside catering establishments, with frequent inspection.

This proposed legislation was prepared by a special committee of the A.A.A. after two years of study and many consultations with leaders in the battle against roadside ugliness. In its present form, it was approved by the A.A.A.'s Executive Committee and unanimously adopted by motor-club councilors from all parts of the nation gathered in annual convention. Its principal provisions are:

1. It applies to all state highways and also those highways outside the state system over which the state exercises supervision or which it helps to construct or maintain. Incorporated municipalities with a thousand or more population are excluded unless the city comes under the provisions by voluntary action.

2. Administration is vested in the state highway department or such other agency as the Governor may appoint.

3. The act sets up a protected area along all highways covered, extending 1,000 feet from the center of the right-of-way on both sides of the road. This area in turn is divided into commercial and non-commercial districts. Two basic regulations apply to both these districts:

First, there is established a 50-foot strip on both sides of the highway within which no structures can be erected other than wayside stands (for the sale of produce raised or goods manufactured on the premises) which must be located at least 25 feet from the right-of-way line, and official or officially authorized warning and direction signs. If existing billboards violate this 50-feet rule, they must be relocated.

Second, the administrative agency is given the right to make and enforce regulations governing the sanitation and appearance of catering establishments in the protected area.

4. No other restrictions on business or industry apply in the commercial area, unless governed by a local zoning ordinance or building code. In non-commercial areas within the protected district, there can be no new business or industrial use without specific permission from the administrative body. Certain types of enterprises are exempted, and the right of appeal from decisions of the administrative body is provided. The act is not retroactive except as regards the sanctity of the 50-foot line.

Non-punitive in nature, the Uniform Roadside Act is designed to accomplish its objectives with a maximum of equity and a minimum of hardship on any type of enterprise.

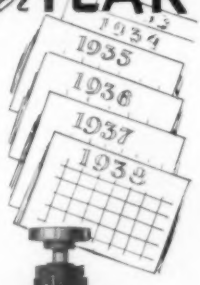
A. J. MONTGOMERY,
Director, Department of Public Relations,
American Automobile Association.

Zone the Roadsides for Planting

Photographs by Marjorie Sewall Cautley, Landscape Designer, Ridgewood, N. J.

PROPER ZONING OF RURAL AREAS WOULD PREVENT THE TYPE OF DEVELOPMENT SHOWN IN THE LOWER PHOTOGRAPH

24 Hour Service YEAR after YEAR

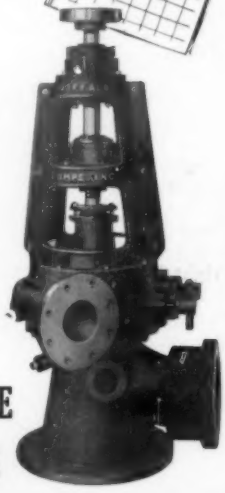


● That's the kind of pump service you must have in your sewage plant. It's the kind of service Buffalo Raw Sewage Pumps have been rendering in sewage disposal plants for many years.

We have just prepared a new bulletin on our latest designs in Non-Clogging Raw Sewage Pumps. Why not write for a copy today?

BUFFALO PUMPS, INC.
189 Mortimer St., Buffalo, N. Y.

Branch Engineering Offices in Principal Cities. In Canada: Canada Pumps, Ltd., Kitchener, Ont.



"Buffalo" RAW SEWAGE PUMPS

Cast Iron Pipe

PLAIN CAST OR SPUN CENTRIFUGAL

Cast Iron Pipe and Special Castings, Bell and Spigot, Flange, Flexible Joint, Culvert, Milled and Plain End Tubes, Cylinders, Flanged and Bell and Spigot Fittings, High Pressure Fire Service Pipe, Warren Short Body Specials, Threaded End Pipe.

Size 2 to 84-inch

Pipe manufactured in accordance with standard specifications adopted and approved by water works associations and engineers.

Warren Foundry & Pipe Corp.
11 Broadway, New York City

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VALVES and HYDRANTS

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The Complete Line

Gate Valves—Check Valves — Valve Boxes — Fire Hydrants—Mud Valves—Shear Gates—Extension Stems—Floor Stands — Tapping Sleeves and Valves — Cutting-in Tees—Flanged Fittings.

M. & H. VALVE & FITTINGS CO.
ANNISTON, ALABAMA

NEW Sewer and Culvert Construction

By making concrete pipe on the job with Quinn Forms you give more men more work; can use less experienced labor and produce uniform concrete pipe of highest quality. Recognized standard of all concrete pipe.

QUINN PIPE FORMS

Quinn Heavy-Duty and Medium-Duty Pipe Forms best for hand or wet process pipe. Give more years of service. All diameters—12 to 84 inches. Tongue and groove or bell end pipe, any length.

WRITE for New Book on Concrete Pipe giving information and prices, valuable tables on production costs, strength tests, Pipe Forms, Pipe Machines, etc. Book sent free.

QUINN WIRE & IRON WORKS 1623 12 St. Boone, Iowa

SURE GRIP SEWER RODS and ACCESSORIES

The REGULAR, a light rod, Fir stock 1¼ x 1¼ inch square.

are joined together with a dual lock forming a rigid chain that will float. They can be coupled or uncoupled upon the street if desired. Made in two sizes.

The MASTER, a heavy duty rod, Fir stock 1⅛ x 1⅛ inch square.

Write for catalog on complete line of sewer cleaning equipment.

EXPANDING SEWER MACHINE CO.
NAPPANEE, IND.

Traffic Control and Facilitation

Conducted by Publications Committee, Institute of Traffic Engineers, 1 Park Ave., New York

Paul L. Green, Chairman; George W. Barton, Kenneth W. Mackall, Miller McClintock, Robert A. Mitchell, William R. McConochie, Arnold H. Vey, Joseph L. Wehmeyer, William A. Van Duzer, Thomas J. Seburn, Roger L. Morrison, Otto K. Jelinek, William C. Brandes

Courtesy of Providence Journal

THE JUNGLE AT THE CORNER OF HOPE AND ANGELL STREETS, PROVIDENCE, THE MORNING AFTER THE HURRICANE

Reconditioning a Wrecked City

After the Hurricane and Flood in Providence

By RALPH W. EATON

Public Service Engineer, Providence, R. I.

ABOUT 2:20 P.M. on Wednesday, September 21, 1938, I began to get reports from the signal services of the Providence Fire and Police Departments of a general destruction of large trees in several parts of the city. Within 40 minutes these reports indicated a disaster involving thousands of fine trees and all overhead systems of electric light and power, telephone, fire-alarm, and police-signal wires. It was evident that the overhead electric wires must not be energized or street lamps lighted.

Soon word came of the cessation of power supply to our police-radio station, and orders were given to place that service on an emergency supply.

At about 5 o'clock, water spurted up from manholes, and in twenty minutes the streets of our main shopping section were inundated, the water continuing to rise until 6:55 to a height of 7 feet. By 9 P.M. it had returned to normal levels. Meanwhile all electric power had been cut off owing to flooding of the local power station. Thousands of fallen trees completely blocked passage of vehicles on hundreds of streets. In the downtown area the streets were filled with abandoned automobiles, and the contents of basements and first floors had somehow to be cleaned up and carted away.

The clean-up after the flood was carried out in a remarkably short time. Electric power was restored to all hospitals within twelve hours, and to a considerable number of bakery, ice and other essential industries within a day or two.

Aided by WPA labor, the highways were rapidly cleared of trees.

The street lighting on the major arteries was restored progressively over a period of three weeks, and in six weeks the street lighting was almost restored.

The traffic-signal system was restored progressively, and was complete in two weeks.

For a brief period the National Guard took charge of the downtown situation, but after four days our own police forces were handling it. Volunteers, especially Boy Scouts, handled traffic at many points and with much credit.

Owing to the abnormal conditions from September 21 to the end of the month, it does not seem useful to study particularly the accident record during that period. During October, however, conditions were progressively approaching normal, the most abnormal element being that substantial mileages of our streets were without street lights for a considerable part of the month.

A study of the motor-vehicle accident records for October reveals the following:

The number of vehicular accidents not involving pedestrians dropped 38 per cent below October, 1937, a reduction not far below what we had been receiving throughout 1938. There was a different story regarding pedestrian accidents; here we showed for October about the same number as in the previous year, whereas throughout 1938 we had been showing large reductions.

The important question was, therefore, whether a greater percentage of pedestrians were injured during hours of darkness, and when there was no street lighting. On this point, the figures show that the percentage of pedestrians injured during street-lighting hours was almost identical with what it had been the previous October (48 per cent in 1938; 48.6 per cent in 1937). This is the most striking thing developed from the records.

Courtesy of Providence Journal

ALL QUIET AT THE BUSIEST DOWNTOWN INTERSECTION IN PROVIDENCE, R. I., DORRANCE AND WESTMINSTER STREETS, AFTER THE TIDAL WAVE RECEDED

The LOCK JOINT "Book of Experience"

Through a Florida Cypress Swamp

Through a Florida Cypress Swamp

AT ST. PETERSBURG, FLA., Charleston, S. C., and Denver, Colo., adaptability to wet laying conditions meant positive savings in pipe line cost.

The joints of Lock Joint Pipe permit quick and effective sealing after laying, even in a very wet trench, thereby minimizing costly sheeting and dewatering. Furthermore, these tight, permanent, and flexible points guarantee a pipe line free of troublesome leaks.

The use of Lock Joint Reinforced Concrete Pressure Pipe for your next pipe line will insure economy in installation and minimum maintenance costs.

LOCK JOINT
Reinforced Concrete
PRESSURE PIPE

LOCK JOINT PIPE CO. Est. 1905. Ampere, N. J.
Pressure : Sewer : Culvert : Subaqueous

LOW TOTAL COST
of operation has been the objective in developing
DE LAVAL *Centrifugal* PUMPS

• De Laval 12 in. pumps to handle 2080 g.p.m. each of sludge containing one per cent of solids.

The INITIAL EFFICIENCY IS HIGH

and long sustained, primarily due to the De Laval Labyrinth Wearing Rings, which are used in all cases. As compared with older pumps, the higher efficiencies now obtained will repay the cost of De Laval pumps in a short time. Renewable wearing parts are used at all points subject to wear. As the pumps are built to limit gages, these parts are interchangeable and renewals ordered by number can be installed at minimum expense and without delay.

Each pump is guaranteed as to characteristics and operation and is tested at our Works.

3201

DE LAVAL STEAM TURBINE COMPANY, TRENTON, N. J.

Ford Resetters

Ford RESETTERS simplify the raising of too-low water meters. They are easy to install and use.

RESETTERS are all brass and copper. They make permanently convenient water meter settings.

Before resetting.

The RESETTER connects between old meter couplings,—the meter being reset between the flanged copper tubes. Write for information.

After resetting.

Ford Meter Box Co.

SETTING AND TESTING EQUIPMENT FOR WATER METERS
WABASH, IND., U.S.A.

Conditions resultant from the hurricane and flood did not seriously upset the operation of our traffic-safety campaign so far as concerned vehicular collisions, but they did in October practically cancel our gains on pedestrian accidents. Despite the lack of street lighting, however, the percentage of night pedestrian accidents was not increased. We feel that on the whole the results indicate that we went through this period without an undue peak in our traffic-accident record.

Seven Traffic Schools

A THOUSAND officers have been trained in the seven traffic officers training schools now operating in the United States, says the International Association of Chiefs of Police. The most recent school is in California, and more than 50 officers of the Pacific Coast states are expected to attend it.

Vehicle-Actuated Crossing Protection

SIGNALIZATION of the intersection of County Trunk Highway "A" and State Trunk Highway 100 at Hales Corners, Milwaukee County, Wis., presented a rather unusual problem because the tracks of an electric interurban railway run diagonally through the center of the intersection. No free-wheel traffic can be allowed to move while the intersection is being used by the electric railway, for the path of the train cuts almost all the possible traffic paths through the intersection.

The problem was solved by using a traffic-actuated dispatcher with vehicle detectors on all approaches. The signals used at this intersection are the standard type approved by the State Highway Commission of Wisconsin, consisting of four double-faced, near-right, far-left signals, giving a positive stop indication on the far-left corner to prevent drivers from having to crane their necks to see the near signal.

The installation operates like all Electro-matic full traffic-actuated systems, assigning the right-of-way only to those approaches which need it, and for only sufficient time to permit the use of the common area of the intersection by the several traffic flows at a maximum efficiency. When a train approaches, a special railroad preemptor automatically takes command of the signals and immediately causes an amber indication to be shown to traffic which previously had the right-of-way, followed by red on both highways. This red indication remains until the last car of the train has cleared the intersection, while a special signal shows the engineer that all vehicular traffic is stopped. The green light is then given to the highway which has been deprived of it for the longest time; from this point on, being controlled entirely by the Electro-matic dispatcher in response to the actuations which have been received from the various vehicle detectors.

E. J. O'MEARA,
Traffic Engineer, State Highway Commission of Wisconsin, Madison, Wis.

Wash Your Traffic-Signal Glasses

By R. R. BRADY

Lamp Division, Westinghouse Electric & Mfg. Co., Bloomfield, N. J.

OBSERVATIONS made from time to time lead to the conclusion that traffic-signal visibility is appreciably impaired by dust and dirt accumulating on the signal equipment. To demonstrate this, a number of representative traffic signals were selected for test. Half were located in a typical industrial city where they were exposed to considerable dust, dirt, smoke and fumes; while the other half were located in suburban towns where they were exposed only to the normal dust and dirt from traffic. In the latter case, observations were made both at points of comparatively light traffic and at points of heavy traffic. In all cases signals were selected as representative of average appearance after a fairly long period of operation without cleaning.

Measurements were made on each unit before cleaning; then with the lens cleaned on the outside, and finally with the inside of the lens and reflector cleaned. Readings were taken by means of a photonic cell illumination meter attached to a cylindrical tube 18 inches long, closely fitted over the signal lens to eliminate any possibility of stray light. Readings taken on the uncleaned units were considered as being 100 per cent, and subsequent readings were calculated to show at a glance the percentage increase in illumination resulting from cleaning. The table below gives the average relative light output of half a dozen traffic signals, in percentages as follows: (1) before cleaning; (2) outside lens cleaned; (3) inside of lens, reflector and lamp cleaned.

	Suburban Towns		
	1	2	3
Green	100	119.0	124.0
Amber	100	117.6	119.8
Red	100	116.0	123.4

	Industrial City		
	1	2	3
Green	100	122.0	142.7
Amber	100	120.7	133.2
Red	100	121.7	146.8

For five units in suburban municipalities, cleaning only the outside lens increased the visibility from 4 to 25 per cent for the green, 11 to 21 per cent for the amber, and 6 to 24 per cent for the red lens; cleaning inside the lens, reflector and lamp increased visibility 13 to 30 per cent for the green, 14 to 25 per cent for the amber, and 19 to 30 per cent for the red. The general average of improvement in visibility, irrespective of the color, was 17 per cent by cleaning the outside of the lens, and 22.4 per cent by cleaning the inside of the lens, the reflector and the lamp.

For six units in an industrial city, cleaning only the outside of the lens increased the visibility from 9 to 31 per cent for the green, 17 to 22 per cent for the amber, and 27 to 62 per cent for the red; cleaning inside of lens, reflector and lamp increased visibility 38 to 70 per cent for the green, 25 to 52 per cent for the amber, and 27 to 77 per cent for the red. The general average in improvement was 21.5 per cent by cleaning the outside of the lens, and 40.9 per cent by cleaning the inside of the lens, the reflector and the lamp.

MEASURING THE LIGHT OUTPUT OF A TRAFFIC SIGNAL WITH A WESTON ILLUMINATION METER

The tube being held over the signal lens contains a photonic cell connected by wires with a meter which the man below is reading

City Helps Transit Reduce Congestion

DALLAS, TEXAS.—We agree substantially with the conclusions drawn in the article entitled "Genuine Cooperation the Way to Modern City Transportation," in the November issue of THE AMERICAN CITY.

The local transportation company has been alert in providing facilities. Vehicles are modern, freshly painted and clean. Routes are designed to render convenient service, and are altered as occasion demands.

In adjusting traffic control devices we consciously favor the mass-transportation vehicles, and, generally speaking, the best public interest is served in so doing. Occasionally a public official will through error of judgment make some recommendation which tends to penalize the mass-movement vehicles, but invariably such matters are straightened out before any harm is done.

Better service with more modern equipment has undoubtedly caused greater use of mass-transportation facilities, and less use of private automobiles in the business district.

R. L. JONES,
Chief of Police.

15 *Load-Luggers*
70 Buckets — one order

One simple demonstration will convince the most skeptical prospect that our cost cutting claims are sound . . . that the Brooks Load-Lugger is America's most effective . . . most versatile equipment for hauling and dumping any material, where loading is done by hand. When one Load-Lugger and four to eight Load-Lugger Buckets can replace several trucks, that's cost-cutting! Savings in operating cost alone pay for the Load-Lugger quickly. Write for "The complete Load-Lugger Story now."

BROOKS EQUIPMENT & MFG. CO.
76 Davenport Road, Knoxville, Tenn.

Street Lighting is Modernized for SAFETY and ECONOMY with
HOLOPHANE REFRACTORS

HOLOPHANE REFRACTORS PROVIDE:

★ SAFETY VISIBILITY ★ MORE LIGHT ★ WIDE SPREAD LIGHT ★ CORRECT LIGHT DISTRIBUTION ★ ECONOMY ★ PROTECTION AGAINST BREAKAGE ★ SERVICE CONTINUITY ★ HOUSE-SIDE SHIELDING

Low first costs and operating savings make for economy. Call or write your equipment manufacturer or . . .

Holophane Co., Inc., 342 Madison Ave., N. Y. C.
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"The
HOST OF THE COAST"

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500 large, airy rooms, newly decorated, many equipped with showers and the latest improvements that will make your stay that much more enjoyable.

All the conveniences and appointments of a fine hotel with sensible rates. Unexcelled cuisine; coffee shop, dining room and the famous Whitcomb Tavern.

HOTEL WHITCOMB
CIVIC CENTER, SAN FRANCISCO

Improving Municipal Administration

Current Items from the Public Administration Clearing House

Community Forums Study Governmental Problems

SEVERAL hundred thousand citizens are learning about governmental problems and other current affairs at community forums in more than 20 states this winter, the International City Managers' Association notes. The public forums are a joint project of the United States Office of Education and local authorities.

In 15 states groups of small communities share forum meetings and leaders, underwriting 27 per cent of their cost from local school budgets or other resources, while the Federal Government supplies the remainder of the financing. In 36 of the larger cities leaders paid by Federal funds are developing the forum programs. Among the cities are Birmingham, Ala., Little Rock, Ark., Des Moines, Iowa, Oklahoma City, Okla., Chattanooga, Tenn., and San Antonio, Texas.

Public forums operated between last January and June in 153 communities attracted an attendance of 280,310 persons.

To Improve Local Zoning Ordinances During 1939

PROPOSALS for changing local zoning ordinances based on surveys made during the past year will come before officials in a number of cities in 1939, the American Society of Planning Officials reports. Included in the extensive surveys recently completed are those of the New York and Cleveland regional planning agencies. Other cities making rezoning studies are Seattle, Minneapolis, Wichita, San Diego, and Memphis.

Both the New York and Cleveland surveys recommended reduction of the areas now zoned for business and industrial uses. They also found that present zoning permits too great a population density in certain apartment house areas, and advised stricter enforcement of present zoning laws. The New York study showed, for example, that towns within the region had assigned from 19 to 29 per cent of their areas for business, while in most cases one-quarter or one-half the amount zoned was actually being used. New York City itself, it was pointed out, has zoned 63 per cent of its land for business and industry, yet is using only 10 per cent for these purposes.

The Cleveland regional survey disclosed that the zoning regulations of one municipality allowed 218 families per net acre in the apartment districts. A density of 30 to 40 families in multiple dwelling zones was quoted as a more reasonable standard. In nearly all 39 communities surveyed, the regulation for residential building in industrial districts was found to be "very lax."

Most ordinances now being written attempt to reduce the zones for business purposes to an amount somewhat near that which will actually be used, the Society pointed out. They also set aside space for recreation areas and in several cases increase minimum residential lot-sizes and provide for architectural control.

Ordinances recently enacted for Marin County, Calif., Southfield Township, Mich., and Glynn County, Ga., specify larger lot sizes. The Marin County, Calif., and Dade County, Fla., ordinances require official approval of building design in certain zoned districts.

San Francisco Joins Cities Having Accident Bureaus

WITH the installation of a motor-vehicle accident prevention bureau getting under way late this month, San Francisco will join Detroit and Cleveland as the third metropolitan city to add such a bureau to its Police Department, the Safety Division of the International Association of Chiefs of Police reported today.

San Francisco will attempt to reduce a high motor-vehicle fatality rate of the past several years, which in 1937 totaled 19.2 deaths per 100,000 of its population —4 per cent higher than in all twelve other cities in the same population class. Seventeen cities in the country which have accident prevention bureaus showed a reduction in fatal traffic accidents averaging 34 per cent during the past year, according to the Association. These cities also reduced personal injury accidents by 26 per cent.

Among recommendations made in the Safety Division's preliminary survey of San Francisco's particular problems were: establishment of an accident investigation unit with man-power gaged to the time of day when most accidents occur; and the provision of radio patrol cars for this unit. The city was also advised to hire a traffic engineer, and the Police Department was urged to cooperate in inaugurating driver training in the high schools.

City Makes Pushcart Men Merchants

WPA workers have completed a $225,000 indoor market to accommodate 163 former pushcart merchants who operated on First Avenue from 1st to 14th Streets, New York City. This is the second market of its type in New York, and the city bought all the material, equipment and supplies. Rental is $4.25 per week per stall. Says Mayor F. H. LaGuardia: "Here is proof of what the WPA can do. This building is a monument to the idea that American citizens who through no fault of their own cannot find work have the right to be provided with work so that they can support their families decently."

Two Localities Cut Payroll Costs by Strict Sick-Leave Check-Up

CAREFUL check-up on sick leaves of public employees by personnel agencies has reduced payroll expenditures in two localities, the Civil Service Assembly of the United States and Canada has reported.

The Jefferson County (Ala.) Civil Service Commission last year cut its payroll $29,304 by deducting employee pay for absence in addition to the annual twelve days' sick leave and two weeks' vacation. This amount represented 6,600 employee-days at the average pay of $4.40 a day, which was forfeited by the employees who took extra leave. Employees injured while on duty were given necessary additional sick leave with pay.

Minneapolis, Minn., reported a reduction of 17.6 per cent in the number of days taken off by employees during the past year after a strict sick-leave reporting system was enforced. A part-time medical examiner was hired by the Civil Service Commission to check on persons in ill health and to give advice on the necessity of sick leave.

Recent City Manager Appointments

C. A. BENTLEY has succeeded Lee Harned as City Manager of McAlester, Okla.

Joseph P. Berry, former City Attorney, has been appointed City Manager of Santa Rosa, Calif., succeeding Arthur P. Noyes, who returns to his former position as City Engineer.

Harold W. Cheek, City Treasurer of Westerville, Ohio, has been appointed City Manager of Big Stone Gap, Va., effective January 1. He fills the vacancy created by the resignation of James F. McCrary.

Draco Dodrill has been appointed City Manager of Clarksburg, W. Va., to succeed R. M. Thomasson.

M. D. Graf has replaced Paul D. Joyce as City Manager of Haines City, Fla.

John Oliver Hall, junior Archives Assistant, Washington, D. C., has succeeded Ed Chouteau, Jr., as City Manager of Nowata, Okla.

W. F. Hamner has succeeded A. E. Taylor as City Manager of Belton, Texas.

Arch Robison, of Findlay, Ohio, has been appointed City Manager of Celina, Ohio, to succeed W. R. Cook.

CLARENCE E. RIDLEY,
Executive Director, International City Managers' Association.

Another City changes to Automatic Meters ST. PETERSBURG, FLA. . . . joins El Paso, Dallas, and Oklahoma City in changing to automatics. These cities have increased installations, too.

WHEN YOU BUY DUAL PARKING METERS YOU BUY *QUALITY AND DEPENDABILITY*

A QUALITY METER, throughout. Every detail, from the sleek, modern aluminum case with durable finish to the mechanism which is of brass and special clock steel, is designed to provide years of satisfactory service. Manufacturer has had many years' experience in making timing instruments,—four years in making parking meters.

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The most important traffic director is the traffic line—the life-line of the highway. When the sun goes down your responsibility goes up. The keeping of traffic in its proper lane is the subject of nearly all discussions to-day. The lines must be clearly marked, visible at all times, in rain and in fog.

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is distinctive. It provides a continuous, brilliantly illuminated stripe that is visible for a long distance, clearly marking curves and outlasting the average paint by many months.

It is economical, easy to apply and needs no care after application.

PRISMO BONDED FIBERGLAS MATT

PRISMO Bonded Fiberglas Matt is a specially treated glass fiber matt, which is ideal for use on metal, wood and concrete. This application covers bridge piers, guard rails, barricades, curb and other obstructions. The outstanding advantages of the matt are that it resists moisture, frost, heat, rain and snow, due to the use of glass fibers in the base material. It prevents vandalism.

Guard rail posts can be made exceptionally luminous with this type of marker. The matt is applied directly to the post or pier.

This type of processed PRISMO bonded fiberglas matt will undoubtedly enjoy the widest use. In addition to the marking of obstructions, any signs, picture or word message can be stenciled or silk screened in black or dark color on fiberglas matt.

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How Monterey's "Shack of the Month" Idea Worked

A COOPERATIVE effort of the Chamber of Commerce and the local daily newspaper in Monterey, which has brought about the voluntary elimination of some of the ugliest structures in that California city, is the subject of an editorial in *The Evening Sun* of Baltimore, Md., of December 3.

A correspondent of the "Sunpaper" had called attention to the fact that citizens of Monterey, by newspaper ballots, had been designating as the "shack of the month" what they regarded as the most unsightly building in town, and that building owners, in most cases, had responded to the verdict with good grace. In reply to an inquiry from *The Evening Sun*, Secretary V. V. Adams of the Monterey Chamber of Commerce, furnished additional information:

"This program was carried on by a committee of the Chamber of Commerce known as the Civic Pride Committee. It later became identified as the 'Snack of the Month Committee.' It operated very successfully for about a little over a year and we plan shortly to resume the program.

"The physical details of the plan were very simple. In the lower right hand corner on page 1 of our daily paper [the *Peninsula Herald*] was printed a ballot. The public was asked to fill out the ballot designating the shack that it felt most objectionable. These ballots were run daily for about a week. When they were counted the newspaper cooperated with us by taking pictures of four or five of the buildings voted upon, stating which one received the highest vote. In some cases the buildings were removed before the ballots came in. One month four buildings were wrecked.

"The principle was purely one of appealing to the civic pride of the owner and his desire not to be one of the property owners that the public might point their finger at. In a very few cases the committee got prices from a wrecking yard for the cost of wrecking and submitted these to the owner. None was ever accepted, but the buildings were removed or repaired.

"The amusing part of the program was that it was started with the sole purpose of creating interest in the Chamber of Commerce and actually not with the idea of wrecking buildings. However, the results were very favorable in both respects, to the point where the committee will be a permanent adjunct of the Chamber of Commerce, working in close conjunction with our City Beautification Committee, which has been in operation for many years and whose functions have been to indorse types of architecture, so that the general appearance of our community will retain its quaint and picturesque aspect.

"A peculiar result of the work of this committee, which was not originally anticipated, was that in the last year our entire main street, known as Alvarado Street, was revamped, merchants changing location and enlarging, until sixteen stores had built new fronts.

"In all, about fifteen buildings were wrecked, and we are reinstating the program as one of the functions of the Chamber of Commerce this year. The committee chairman, in our instance, happened to be a man in the building and loan business. In view of the type of work the committee does, I should suggest that, should Baltimore attempt this plan, the committee include a real estate man, a banker, a member of your History and Art Association, if you have such an organization; a member of your City Beautification Committee; a member of your Parks and Playgrounds Commission, and a member of your Clean-up Week Committee."

What Various Classes of Property Contribute to New York's Real Estate Tax

And What the Homeowner Gets for His Money

"KNOWING the Tax Department and the Tax Commission of the City of New York" is the title of a pamphlet dated November 1, 1938, in which President William Stanley Miller of the Tax Department explains to the citizens of New York the details of the services for which the homeowner receives a bill.

The average assessed value of a one-family home in the city of New York (outside the borough of Manhattan) is shown to be $5,800. For such a typical home the 1938 tax was $189.54, expended by the municipal government as follows:

		Annual Cost
General Administration		$3.26
Executive	$1.25	
Finance and taxation	1.30	
Legislative	.13	
Board of Elections	.58	
Judicial		6.30
Public Welfare		16.825
Department of Welfare	.30	
Charitable institutions	4.29	
Board of Child Welfare	2.41	
Pensions, old age	9.825	
Education and Recreation		31.89
Board of Education	27.33	
Board of Higher Education	2.56	
Libraries	.87	
Zoological and Botanical Gardens, Museums, Playgrounds	1.13	
Fire and Police		28.67
Protection of persons and property	27.61	
Correctional purposes	1.06	
Water		16.70
Health and Sanitation		11.58
Department of Hospitals		7.265
Parks, Streets and Public Structures		9.06
Parks, parkways and drives	1.89	
Streets, highways and bridges (care and maintenance)	3.40	
Docks and ferries	1.45	
Board of Transportation and Transit Commission	.07	
Public buildings and offices	2.05	
Department of Markets	.20	
Miscellaneous		2.605
Publication of *City Record*	.125	
Sundry rents	.305	
Memorial Day observances	.005	
Judgments and claims	.11	
Adjustment of wages	.06	
Water	2.00	
Interest on Debts		25.105
Interest on long-term debt	24.545	
Interest on temporary debt	.56	
Debt Reduction		19.84
Redemption of long-term debt	7.74	
Amortization of funded debt	4.90	
Redemption of tax notes	1.96	
Redemption of special revenue bonds	5.24	
Borough Assessments		10.44
Total		$189.54

An appendix gives the number of buildings in each of the five boroughs under thirteen classifications, and the total valuation of each group. An an addition to this appendix President Miller has furnished to THE AMERICAN CITY the following tabulation showing how the assessed values are divided betwen land and improvements:

Building Class	Number of Buildings	Land	Improvements	Total
One-family dwellings	294,110	$899,912,135	$1,101,847,300	$2,001,759,435
Two-family dwellings	164,487	519,434,525	850,641,895	1,370,076,420
Walk-up apartments	135,513	1,349,202,255	1,742,227,370	3,091,429,625
Elevator apartments	6,295	714,123,850	1,447,197,150	2,161,321,000
Warehouses	2,679	71,476,930	99,913,350	171,390,280
Factories	9,399	211,867,180	282,638,220	494,505,400
Garages	12,223	198,244,940	136,650,325	334,895,265
Hotels	567	159,962,800	194,366,500	354,329,300
Theaters	769	128,128,150	93,826,950	221,955,100
Store buildings	10,551	477,400,135	167,862,045	645,262,180
Loft buildings	8,396	606,311,075	443,182,375	1,049,493,450
Office buildings	1,730	829,459,500	725,041,100	1,554,500,600
Miscellaneous buildings	18,962	332,144,040	179,144,460	511,288,500
Total, all buildings	665,681	$6,497,667,515	$7,464,539,040	$13,962,206,555
Vacant land (parcels)	176,035	578,603,722		578,603,722
Total taxable ordinary real estate	841,716	$7,076,271,237	$7,464,539,040	$14,540,810,277
Utilities assessed by the Bureau of Real Estate of Corporations		294,763,940	1,137,505,735	1,432,269,675
Exempt real estate				4,686,322,604
Total taxable and exempt				$20,659,402,556

The Municipal Bond Market

Recent sales of new issues from December numbers of *The Bond Buyer:*

Amount	Borrower and Purpose	Rate (%)	Term (Years)	Basis (%)
$135,000	Meriden, Conn., Sewage-Disposal Plant	1.25	5.33 Avg.	1.18
335,000	Malden, Mass., Relief	1.5	5.33 Avg.	1.46
100,000	Victoria Co., Texas, Jail	2	3.85 Avg.	1.71
110,000	Ellensburg, Wash., Special Water Revenue	2	6.33 Avg.	1.91
700,000	McKeesport, Pa., Public Improvement	2.25	2-21 Ser.	2.07
200,000	Wilkinsburg, Pa., Borough	2.25	11 Avg.	2.09
1,800,000	Westchester Co., N. Y., Cross County Parkway Revenue	3.25	3/12 Opt.	3.05
530,000	Bayonne, N. J., Port Terminal	4	14.16 Avg.	3.64
281,000	Knoxville, Tenn., Electric Light and Power System	4	8.66 Avg.	3.65
240,000	Fairbanks, Alaska, School, Sewer and Street	4	15.33 Avg.	4
168,000	Ft. Pierce, Fla., Electric Revenue Certificates	4	10.33 Avg.	4.37

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Sunken concrete slab is raised to correct grade by the Mud-Jack Method — preventing breakage of the slab and eliminating reconstruction costs.

Increase the life of concrete slab by the Mud-Jack Method. Write for information about economical maintenance of curb, gutter, and sidewalk slab.

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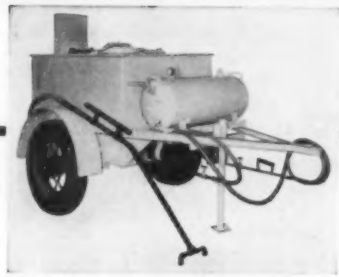

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Hand and Motor driven spray.
Many sizes. Write for catalog.

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Get rid of water quick. 2" size pumps 6,000 gph.—weighs 79 lbs. 3" handles 15,000 gph.—weighs 91 lbs. Have fast automatic self-priming. Handle seepage or muddy water. Have 28-ft. suction lift.

Generators

For floodlighting or time-cutting electric tools. Comes in three sizes. 2500-watt size weighs 135 lbs. 1250-watt size, 89 lbs. 650-watt size, 71 lbs. Completely automatic. Rugged. Always dependable.

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Provides safe air for underground work. Supplies up to 2,000 cu. ft. Can be regulated. Weighs only 70 lbs. Operates by itself automatically. Needs no attendant. Comes with a long canvas air duct. Built for long life under the toughest service.

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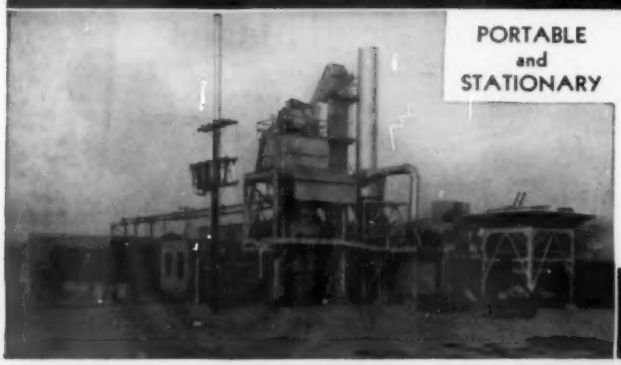

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Prepared by
FRANK B. WILLIAMS
Author of "The Law of
City Planning and Zoning"

Zoning and Planning Notes

With the cooperation of
EDWARD M. BASSETT
Author of "Zoning" and of
"The Master Plan"

Zoning Ordinance—Residential District

CALIFORNIA. — *Reynolds v. Bassett, Building Inspector*, 83 Pac. 2d, 29 (Supreme Court, October 6, 1938).—This is an action to compel the Building Inspector of the town of Piedmont to issue a building permit to erect a business building in a residential zone. The city of Piedmont is entirely surrounded by the city of Oakland; it is operated under a freeholder's charter which, among other things, declares the city to be "primarily a residential city." This ordinance restricts all realty outside of two business districts to residential use.

Held by the Court:

That this ordinance is not invalid generally as creating a monopoly in one of the business districts in which all realty is owned by one corporation, in view of facts that the city entirely surrounding it contains many business establishments, and that one of the two business districts is not fully built up.

That the residents of Piedmont, which is primarily a residential city, have a legal right, within constitutional limits, to keep the city a residential city.

The mere fact that business property was located across the street, or even adjoining the property restricted by ordinance to residential use, did not determine that the ordinance was invalid or discriminating.

That nearby business property has the same characteristics as the parcel involved does not justify the Court in substituting its judgment for that of the legislative body of the city. The adaptability and suitability for business purposes of realty located in a district restricted by ordinance to residential use did not determine that the ordinance was discriminating and void, since the good of the entire district must be considered.

But, since the property consisting of one lot is entirely surrounded by non-residential property, the ordinance is clearly arbitrary and void in so far as it is applied to that isolated realty; no rational reason existing for such a classification.

Private Covenant—Residential Use—School

FLORIDA.—*Noble v. Kisner*, 183 So. 836 (Supreme Court, October 12, 1938).—A restrictive covenant providing that certain property should be used only for residential purposes and that no hospital, store or mercantile building, public garage, filling station, stable, or other similar structure or business should be erected on it, the covenant being intended to insure uniformity of improvements and the beauty and value of the property, did not preclude the conducting of a private school in a residence in the construction of which uniformity of improvements and the beauty and value of property were not violated; for the principle of *ejusdem generis* should be applied—i. e., in the construction of written instruments when certain things are enumerated, and when a phrase is used which might be construed to include other things, it is generally confined to things of the same sort.

And there is no reason why a private school may not be so conducted that, instead of being a nuisance, it may be a benefit to those residing in its vicinity.

Zoning Ordinance—Estoppel

KANSAS.—*Leigh v. City of Wichita*, 83 Pac. 2d, 644 (Supreme Court, November 5, 1938).—The fact that certain city officials had permitted the zoning ordinance to be violated for a number of years did not estop the city from enforcing the ordinance.

Non-Conforming Use—Abandonment

MASSACHUSETTS.—*Paul v. Selectmen of Scituate*, 17 N. E. 2d, 193 (Supreme Court, October 28, 1938).—Under a zoning ordinance providing that any structure in a certain zone which at the time of the adoption of the ordinance was being used for a purpose not permitted under the ordinance might be continued in such use, a finding that a building used for a restaurant was not abandoned in such use was proper notwithstanding that the building was vacant for several years; for a mere non-use does not conclusively show an abandonment of a use.

EDITOR'S NOTE.—Abandonment is a matter of intention; and the fact that property is idle does not necessarily prove it; see the Connecticut case of *Town of Darien v. Webb*, in our Notes for January, 1932, and January, 1933; the Wisconsin case of *State ex rel. Schact v. Manders* in our Notes for February, 1932; the four cases under Abandonment in our Notes for July, 1937; and the New Jersey case of *Campbell v. Board of Adjustment* in our Notes for October, 1937.

Zoning Ordinance—Business District—Parking

NEW YORK.—*Friedel v. Murdock*, Supreme Court, Kings County, reported in *New York Law Journal*, November 15, 1938, page 1635:

Motion to dismiss the order of certiorari herein and to affirm the determination of the Board of Standards and Appeals is granted. Pursuant to section 7-h of the Amended Building Zone Resolution the Board of Standards and Appeals granted permission to use premises situated in a business use district for the parking of automobiles. The permit was granted for a period of two years. In an application under this section applicants need not allege or prove the existence "of practical difficulties or unnecessary hardships" as they must under section 21 of the Amended Building Zone Resolution. Subject to appropriate conditions and adequate safeguards, the Board of Standards and Appeals may "determine and vary the application of the use district regulations herein established in harmony with their general purposes. . . ." The only limitation upon the exercise of this power is the requirement that in each case the Board act on some reasonable basis (*Matter of Reed v. Board of Standards and Appeals*, 255 N. Y., 126). That the Board in this case acted upon a reasonable basis cannot be seriously questioned, for its determination proceeded upon findings that the use of the space in question for parking will benefit the surrounding area by avoiding the accumulation of dirt and rubbish on the lot, by filling a long-felt need, and by aiding in the solution of parking and traffic problems. The Board also found that use of the space for parking would in no way compete with garages in the surrounding area, would permit the applicant to derive an income from his property, which in turn would enable him to pay taxes now in arrears. ¶ There is no merit to the argument that a permit for parking should have been denied because the space is being used at the present time for the storage of automobiles. Should the holder of the permit exceed the permitted use, there are agencies which may be invoked to prevent it. Nor is there any merit to the argument that the Board is inflexibly bound by its determination in other proceedings that permits will be withheld from those who have violated a building zone resolution or a city ordinance. The Board must determine each case upon its own peculiar facts. Whether in a given case a violation is of such a character as to warrant a denial of a permit involves an issue that rests in the sound discretion of the Board. That discretion will not be disturbed unless manifestly abused. No such abuse is here shown.

EDITOR'S NOTE.—This case illustrates admirably the distinction between the power of a Board of Appeals to grant relief for practical difficulty and unnecessary hardship, and its power to act in certain situations specified in the zoning ordinances, like the one in the above case, where it is unnecessary to show practical difficulty or unnecessary hardship. The distinction and its consequences are so clearly stated in the opinion of the Court that they need no further elucidation here. For further explanation see Bassett, "Zoning," pp. 123, 125.

Residential District—Private Covenant—Zoning Ordinance

OKLAHOMA.—*Magnolia Petroleum Co. v. Drauver*, 83 Pac. 2d, 840 (Supreme Court, October 25, 1938).—A restriction on a plot and dedication of a town site that no building should ever be used or occupied for any purpose except for that of a private residence is valid; and a city ordinance rezoning a part of this territory for purposes other than residence did not supersede that restriction so as to prevent its enforcement.

EDITOR'S NOTE.—The law is well settled that zoning under the police power does not repeal private restriction; see the Ohio case of *Kahenge v. Whetstone* (1936), with reference to other cases on the subject in our Notes for April, 1936.

In the opinion of the Court the case of *Southwest Petroleum Co. v. Logan*, 180 Okl. 477 (1937), to the same effect, is cited.

TOLEDO POLICE WORK FAST WITH W.E. RADIO

Cracksmen caught in 2 minutes!

On January 6, 1938, two ex-convicts tackled a safe on the premises of Motor Units, Inc., Toledo, Ohio.

The alarm—given by A. D. T. Burglar Alarm—was immediately passed on to Police Headquarters.

Within 2 minutes, radio police arrived and made the arrest.

The average time for responding to an alarm in Toledo is 2½ minutes, says Chief R. E. Allen. Such efficient police work has led to more prompt arrests and to lower theft insurance rates.

Toledo has been using Western Electric equipment since November 8th, 1930—broadcasting alarms to radio cars patrolling an area of 39 square miles. There are 3 shifts of cars—20 on each shift. And, in addition, the headquarters transmitter also serves the Lucas County Sheriff's Office and motor equipment.

An interesting point brought out by Chief Allen is that since the installation of radio, the police receive many more telephoned complaints of the minor variety. He attributes this increase in minor crimes reported to the people's knowledge that they will receive attention *immediately*.

Whether your community is large or small, there is Western Electric equipment to meet your needs—to help you give your citizens faster, fuller protection. For details, write to Graybar Electric Co., Graybar Building, New York City.

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POLICE RADIO TELEPHONE EQUIPMENT

Court Decisions Affecting Municipalities

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Accidents

City held liable for injury to pedestrian due to careless driving by motorcycle policeman in pursuing speeding motorist; and policeman held not engaged in an "emergency duty," within the meaning of a statute exempting policemen from speed laws, while clocking speeder (Pennsylvania Supreme Court: *Cavey v. City of Bethlehem*, 1 Atl. 2d, 653).

City held not liable for injury to pedestrian who fell into hole in barricaded street under repair, although cinder path alongside street was used by pedestrians (Kentucky Court of Appeals: *Myers v. City of Louisville*, 120 S. W. 2d, 221).

City held liable for injury to bather struck by pole that was carried in by surf after having been negligently placed on beach by employee of city (New York Supreme Court, Appellate Division, Second Department: *MacGillicuddy v. City of New York*, 7 N. Y. Supp. 2d, 71).

City held liable for injury to woman pedestrian whose shoe heel caught in crevice between sidewalk and curb as she stepped onto the street pavement (Iowa Supreme Court: *Thomas v. City of Ft. Madison*, 281 N. W. 748).

Statute making municipalities liable for injuries to travelers through defects in roads and bridges held to extend to child injured by sidewalk defect while playing on walk with tricycle (Wisconsin Supreme Court: *LeMay v. City of Oconto*, 281 N. W. 688).

City but not water company held liable for injury to pedestrian who stepped into hole surrounding meter-box on parkway (Kansas City, Mo., Court of Appeals: *Banty v. City of Sedalia*, 120 S. W. 2d, 59).

Town held not liable for injury to motorist jolted when car passed over drainage depressions three and five inches deep (Iowa Supreme Court: *Dodds v. Town of West Liberty*, 281 N. W. 476).

Bond Issues

Authority to issue bonds for "public parks" held to authorize issue for stadium. Authority to issue bonds for improving or enlarging a light plant and distributing system therefor held to permit an issue for modern "white way" illumination on designated streets, although current was secured by city from outside sources (Arkansas Supreme Court: *Todd v. McCloy*, 120 S. W. 2d, 160).

Under statute, court order for refunding special assessment bonds held void where all the outstanding bonds had not been deposited (Illinois Supreme Court: *Thayer v. Village of Downers Grove*, 16 N. E. 2d, 717).

Civil Service

City Commissioner who recognized employee's right to reinstatement after unjustified dismissal held not entitled to justify refusal to reinstate the employee on the ground that the Mayor had forbidden reinstatement (New York Supreme Court, Special Term, New York County: *In re Kelly*, 6 N. Y. Supp. 852).

Provisions for observance of seniority in retiring employees upheld, but wrongfully dismissed employee, in mandamus proceeding to require reinstatement, held not entitled to recover pay for time while excluded from position, being required to resort to separate suit for that purpose (Ohio Supreme Court: *State v. De Corps*, 16 N. E. 2d, 459).

Depositaries

Sinking-fund, meter fund, firemen's pension fund, paving fund and general fund, deposited by Town Treasurer in bank, held separate deposits on each of which Federal Deposit Corporation became liable up to $5,000, on bank's failure, as against contention that there was but one deposit with a $5,000 liability limit on the combined deposits (United States District Court, Western District of Oklahoma: *Casady v. First State Bank of Cheyenne, Okla.*, 24 Fed. Supp. 687).

Elections

Election of councilmen held not vitiated because successful candidates were sponsored by friends of power company who opposed municipal plant project (Iowa Supreme Court: *Van Der Zee v. Means*, 281 N. W. 460).

Bond election held not vitiated by non-compliance with statutory requirements concerning time for publishing notice of election and for registration of voters, the irregularities not affecting the fairness of the election (South Carolina Supreme Court: *Phillips v. City of Rock Hill*, 198 S. E. 704).

Licenses

Ordinance imposing annual fee of two cents per square foot for billboard inspection upheld, regardless of whether inspection had been made (Ohio Court of Appeals, Hamilton County: *City of Cincinnati v. Morton*, 16 N. E. 2d, 826).

City held empowered to limit number of beer sale licenses to be issued and to refuse a license in excess of that number to one granted a state permit (Montana Supreme Court: *State v. City Council of City of Libby*, 82 Pac. 2d, 587).

Village ordinance requiring license to conduct mercantile auctions held inapplicable to live-stock auctions at which furniture, etc., was incidentally sold (New York Supreme Court, Chenango County: *Walker v. Wearb*, 6 N. Y. Supp. 2d, 548).

Official Bonds

Bond requiring official to "account" for all funds coming into his possession held to require him to pay them over as well as render a statement of account (United States District Court, Western District of Washington: *Port of Seattle v. Fidelity & Deposit Co.*, 24 Fed. Supp. 434).

Official Contests

One not entitled to office held not entitled to question title of incumbent. Rule applied to president pro tem of council who sought to oust president as being without title to office (Ohio Court of Appeals, Hamilton County: *State v. Oridge*, 16 N. E. 2d, 840).

Official Pay

Clerk held not entitled to pay for extra services informally authorized by mayor and councilman but not covered by council order. Council order reducing salaries held to sufficiently comply with statutory provision for reduction of salaries by "ordinance" (Mississippi Supreme Court: *Chinn v. City of Biloxi*, 183 So. 375).

Pensions

Under statute, policeman held not entitled to retire on disability pension unless disability arose out of performance of his duties and not from intemperance (New Jersey Supreme Court of Errors and Appeals: *Cummings v. Policemen's Pension Commission of Borough of Belmar*, 1 Atl. 2d, 398).

Under statute, deductions held properly made from municipal pension after member's retirement, as well as from salary before retirement. Five years' delay held to bar pensioner from objecting to deductions made from pension (New Jersey Supreme Court: *Clay v. Police and Fire Pension Fund Commission of City of Camden*, 1 Atl. 2d, 334).

Under statute, widows of firemen held entitled to increased pension although increased assessment accompanying increased benefits had not been paid on their behalf (Colorado Supreme Court: *People v. Board of Trustees of Firemen's Pension Fund*—Denver, 82 Pac. 2d, 765).

Police Measures

City held to have power, which could be delegated to commissioner of parks, to prohibit projection of voices from private property into streets, etc., advertising wares to irritation of persons in streets, etc. (New York City Magistrates' Court, Borough of Brooklyn: *People v. Caponigri*, 6 N. Y. Supp. 2d, 577).

Public Utilities

Electric company not holding exclusive franchise held without standing to challenge validity of municipal project for construction of competing plant under Federal aid (United States District Court, District of Idaho: *Washington Water Power Co. v. City of Coeur D'Alene*, 24 Fed. Supp. 790).

City establishing electric plant in competition with company held without right to require company to alter its arrangements, but company was denied temporary injunction where there was a conflict in evidence as to existing conditions of which company complained (Alabama Supreme Court: *Alabama Power Co. v. City of Guntersville*, 183 So. 396).

Streets

Real estate subdivision plat filed under statute held to effectually dedicate to public use streets shown on plat, without acceptance of dedication by public authorities and without immediate opening of the streets (Louisiana Supreme Court: *Arkansas-Louisiana Gas Co. v. Parker Pil Co.*, 183 So. 229).

Under statute making city general fund liable for paving cost in excess of an amount equaling one-half the value of specially assessed abutting property, paving contract purporting to exonerate city from such liability held invalid (Kentucky Court of Appeals: *Hunt v. City of Ashland*, 119 S. W. 2d, 640).

City, in improving street on which there had been no established grade, held not bound to construct retaining wall to support bank left in front of abutting property, and therefore not liable for subsequent injury to property due to crumbling of wall (Ohio Court of Appeals, Hamilton County: *Belk v. City of Reading*, 16 N. E. 2d, 779).

Contract relieving street railroad from assessment for paving streets held not abrogated by later statute providing for assessment of street-railroad property for paving (New York Supreme Court: *City of Yonkers v. Yonkers Railroad Co.*, 6 N. Y. Supp., 2d, 519).

Taxation

That seller to city of electric plant retained title as payment for purchase price held not to make the seller owner of the property in such sense as to be taxable therefor (Missouri Supreme Court: *Municipal Acceptance Corporation v. Canole*, 119 S. W. 2d, 820).

Ordinance attempting to create liens against real estate to secure payment of municipal taxes held void as not being authorized by statute or charter (New Mexico Supreme Court: *Patten v. Corbin*, 82 Pac. 2d, 789).

Property held subject to sale for unpaid city taxes despite adjudication of the same property to the state for unpaid state and parish taxes for the preceding year (Louisiana Court of Appeal, Second Circuit: *Touchstone v. Comer*, 183 So. 291).

City held not debarred to collect tax through error of treasurer in stating that tax had been paid, although error damaged taxpayer (Michigan Supreme Court: *Lovett v. City Treasurer of Detroit*, 281 N. W. 576).

Water Rents

Statute providing lien against real estate for water rents delinquent for six months, on filing statement, held not to require filing every six months where delinquency extends over a period of years, and statement filed held to effectually create lien for water furnished over a period of nearly four years preceding date of filing (New Jersey Court of Errors and Appeals: *New Brunswick Savings Institution v. City of New Brunswick*, 1 Atl. 2d, 378).

4th Avenue, downtown Seattle. Old surface removed and base resurfaced in 1937.

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JUST *how saving* in surface maintenance is concrete? Seattle provides the answer with a report on costs for the 13-year period from 1924 to 1936 inclusive.

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Concrete cost this city approximately *one-fifth* as much per square yard for surface maintenance as pavement "A"... approximately *one-seventh* as much as pavement "B". Both "A" and "B" are high-type pavements of equivalent first cost, but *concrete carried a far greater volume of traffic;* most arterial streets and much of the downtown business district are concrete paved.

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Municipal and Civic Publications

Please mention THE AMERICAN CITY when ordering; prices quoted do not include postage, unless so stated

Road Construction

Tar Roads.—By A. C. Hughes, County Surveyor for Hampshire, England, W. G. Adam, Superintendent, Products Works, The Gas Light and Coke Co., and F. J. E. China, Technical Director, Messrs. Burt, Boulton & Haywood, Ltd., all of England. Published by Longmans, Green & Co., New York. 1938. *XII + 196 pp., including index.* $6.50 *from* THE AMERICAN CITY.

Volume VIII of The Roadmakers Library, prepared and originally published in England, is devoted to the subject of tar roads. It tells in one concise volume the origin, properties, method of manufacture and application of coal tar to the construction and maintenance of roads and sidewalks. The importance of tar as a road material in England is duplicated in the United States, so that this book should find many readers among officials and engineers of our street departments.

Parking

The International City Managers' Association and the American Society of Planning Officials have issued a pamphlet, "The Parking Problem in Central Business Districts, With Special Reference to Off-Street Parking," which analyzes this problem that is becoming of more and more concern not only to municipal officials, but to business interests and the individual motorist as well. The first part of the study reports public and private off-street parking facilities in 147 cities. The second part discusses other factors which must be considered for the solution of the parking problem in congested areas: parking-time devices; comprehensive traffic surveys; zoning; curb parking; mass transportation; and the implications for city planning which are involved in this question. In general, it was found that most cities considered it best from every standpoint to park cars off the street. 28 pp. $1.00. (Apply to Public Administration Service, 1313 E. 60th St., Chicago, Ill.)

Business Recovery

In an address before the Fourteenth Annual New England Conference at Boston, on November 18, Lewis H. Brown, President of Johns-Manville Corporation, spoke on "A New Approach to Recovery."

Stating that "for the first time in six years the stage is set so that real cooperation is now possible between government and business leaders," and pointing out the vital importance of this cooperation, Mr. Brown presented eleven factors which require immediate consideration and study by government and business: an approach to economic problems on a long-range rather than an emergency basis; decentralization to "revive and restimulate local responsibility and action"; re-stabilization of the dollar; balancing the budget; broadening the tax base and simplifying duplication of taxation; revising the Social Security and old-age security programs, the farm program, relief system, National Labor Act, and restraints on Wall Street. 15 pp. (Apply to Johns-Manville Corp., 22 E. 40th St., New York.)

Business and Industry

The Proceedings of the 24th Annual Meeting of the National Association of Commercial Organization Secretaries, held in October at New Orleans, contains, besides the usual reports of officers and committees, papers and discussions on various problems which are involved in "The Present-Day Job of the Chamber of Commerce." Many of these revolve about the new position of the chamber of commerce executive which results from centralized control of business by government, and the importance which the question of employer-labor relations is assuming on the American business front. Other topics discussed are: civic programs; the membership problem; aviation as a local problem; industrial trends, as related particularly to different parts of the country; business leadership in the field of legislation and taxation; everyday routine problems of the secretary. 286 pp. (Apply to Nat'l Assn. of Commercial Organization Secretaries, 1615 H St. N. W., Washington, D. C.)

Urban Sociology

Urban Sociology.—By Earl Edward Muntz. The Macmillan Co., New York. 1938. *xvi+742 pp., including index.* $3.75 *from* THE AMERICAN CITY.

The arrangement of this study makes it particularly suitable for use as a textbook for the beginner on the nature of the problems attending modern city life and the attempts at their solution. The author has based this thorough work on the adjustments to urban life which community interest demands: the realignment of rights, duties and personal freedom in the city environment; and the communal responsibility for housing, health, education and recreation. One of the outstanding features of the volume is the comprehensive description of all the major attempts by private enterprise, limited dividend corporations, cooperatives and governments, both in Europe and the United States, to solve the problem of housing for the low-income groups. The whole complex organization necessary to maintain urban water supply, sewage disposal and other necessary sanitary and health services, together with description of various methods used, is explained in a readable fashion.

In some of his conclusions the author may underestimate the constructive potentialities of forces seeking better conditions for city living—but for a clear general picture of where we stand now, the book leaves little to be desired.

LELAND G. DEWEY.

Public Health

Public Health Services.—By Norman Wilson, Medical Officer's Department, Birkenhead, England. One of the Administrative Research Series of the Institute of Public Administration, London, England. Published by William Hodge & Co., Ltd., London, England. 1938. *243 pp.* 7*s.* 6*d.*

This book is concerned with one of the most important functions which local authorities are entrusted to undertake. It includes a brief historical survey of public health activities in England, followed by an examination in some detail of the manner in which county borough councils in England and Wales provide the main elements of public health service.

Housing and Town Planning

The International Housing and Town Planning Congress at Mexico City this summer is reported in three volumes covering the three main topics of discussion at the congress: Planning Recreation, Underground Planning, and Housing in Tropical and Sub-Tropical Countries. Broad in scope, each volume consists of the talks and papers of representatives of different countries. The reports are printed in French, English and German, each paper in the language of the author, with summaries in the other two languages. Illustrations, charts and maps bring out points of interest. 70, 58, and 96 pp., respectively. (Apply to International Federation for Housing and Town Planning, 47, Cantersteen, Brussels, Belgium.)

Municipal Finance

"The Support of Local Government Activities" is the title of an 80-page pamphlet dated January, 1939, advance copies of which were made available last month by the Municipal Finance Officers' Association. Excerpts from this report by the Association's Committee on Local Government Activities and Revenues are published on page 35 of this issue of THE AMERICAN CITY. A valuable Appendix lists a wide variety of municipal revenue sources classified under the following headings: Property Taxes; Business and Occupational Licenses and Taxes; Taxes on Utilities; Other Locally Levied Taxes; Alcoholic Beverage Licenses; Licenses and Permits for Street Use; Other Non-Business Licenses and Permits; Fines; Forfeits and Penalties; Service Charges; Municipal Ownership Profits; and Special Assessment for Outlays. 50c. (Apply to the Association at 1313 E. 60th St., Chicago, Ill.)

Pipe Protection

Pipe Corrosion and Coatings.—By Erick Larson, of Stevenson, Greist & Larson, Consulting Engineers, with a chapter on Cathodic Protection by George I. Rhodes, Vice-President, Ford, Bacon & Davis, Inc., Engineers. First Edition. Published by American Gas Journal, Inc., New York. 1938. *458 pp.; 151 illustrations; complete index.* $2.50 *from* THE AMERICAN CITY.

A book written to explain theory in a way that the average user of pipe can understand it, to show in plain language how theory should be applied in practice, and to outline specific procedure for determining the corrosiveness of soils, for making corrosion surveys of pipe lines and for applying protective coatings. The book contains 28 chapters of valuable information and, while particularly directed to gas pipe, it is also applicable in the water-works field.

Planning

American Planning and Civic Annual.—Edited by Harlean James. American Planning and Civic Association, 901 Union Trust Bldg., Washington, D. C. 1938. $3.00.

The American Planning and Civic Annual contains the usual fine collection of talks given by authorities in the field, and at the Conference on National Parks, the National Conference on State Parks, and the National Conference on Planning.

The first part, National Parks, contains the following sections: Growth of the National Park System, Forecasting the Future, Recreational Use of National Parks, Wilderness Areas. The second part, State Parks, contains sections on: Education, Planning and Administration, Recreational Programs, Interstate Relations, State Park Development in the South. The third part, on Planning, covers general phases of national, state, regional and city planning, including housing, traffic, rural and agricultural zoning, education for planning, population and urban land problems, legislation, budgets.

Taxation

The State Tax Commission of New York has added another to its series of comprehensive and valuable documents, in the publication last month of its Annual Report for 1937. Special features include discussions *pro* and *con* of earmarking motor-fuel tax revenue; of the desirability of maintaining or modifying the state's present policy in exempting from taxation property of religious, education and charitable organizations; and for or against over-all tax-rate limitation. The statistical tables that comprise most of this 375-page report cover in great detail the origin and distribution of state and local taxes; the tax rates of the various cities; the assessed valuations of land and improvements; the bonded indebtedness of the state and its subdivisions, and other important data. (Apply to State Tax Commission, Albany, N. Y.)

Traffic

"Survey of Traffic Conditions in New Orleans," made by the WPA in cooperation with the Department of Public Safety, is an exceedingly thorough and comprehensive study of traffic activity in that city. Twelve million observations were made. Every phase of the problem is covered: accidents, traffic volume and flow; speeds; street arrangement and design; control devices; traffic habits of pedestrians and motorists; parking habits and facilities; educational activities; and the administrative and enforcement agencies. Data were taken and analyses made of special features of the traffic problem, such as volume, cordon and pedestrian counts; "worst corners"; school-child pedestrian practices; driver obedience to Stop and Go signals; and many others. The facts and conclusions of the report are brought to a focus in many illuminating graphs and charts. Recommendations are made for reducing traffic accidents and expediting traffic movement; a proposed traffic ordinance of some hundred pages is included. 419 pp. (Apply to Dept. of Public Safety, New Orleans, La.)

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Population Data

"Color, Sex and Age of the Population Enumerated," presents distribution of persons in 83 cities according to color, sex and age. Obtained by a house-to-house canvass between November, 1935, and March, 1936, the data were collected in connection with a study of the prevalence of chronic disease and gross impairments, and receipt of medical care, in the general population. (This study was listed in THE AMERICAN CITY, February, 1938, p. 101.) For cities of 100,000 population or over, samplings were taken; for cities under this size complete canvasses were made. The material can be used in calculating mortality incidence and other rates, provided certain limitations are taken into account. 16 pp. (Apply to National Institute of Health, U. S. Public Health Service, Washington, D. C.)

Emergency Taxes

Four papers on the New York City emergency tax laws, presented at a recent conference of the New York State Society of Certified Public Accountants, are published in the November, 1938, issue of *The New York Certified Public Accountant*. The subjects and authors are: "The Legal Theory of Emergency Taxes," by Frederick vP. Bryan; "Outline of Major Features of New York City Emergency Taxes in Effect at October 24, 1938," by Committee on Municipal and Local Taxation; "Accountant's Role in New York City Emergency Taxes," by George L. Weisbard, C.P.A.; and "The Administration of the Emergency Revenue Division," by Samuel Orr. 25c. (Apply to the Society at 30 Broad St., New York.)

Roadside Development

American Highways and Roadsides.—By Jac L. Gubbels, Landscape Engineer, Texas Highway Department. Published by Houghton Mifflin Co., Boston, Mass. 1938. *XXIII + 94 pp. Illustrated.* $2.75 *from* THE AMERICAN CITY.

A straight-from-the-shoulder discussion of the need of roadside treatment from the standpoint of safety, economy and esthetics. More practical than earlier authors on this subject, Mr. Gubbels presents the responsibility of the highway engineer to the traveling public and also to the owners of adjacent land. The handling of the drainage problem is one of the most important in roadside development. Concrete examples are given in this small but pertinent volume.

Housing

Because the success of government housing depends on cooperation by the local community and informed support by citizens, the United States Housing Authority has issued a pamphlet, "What the Housing Act Can Do for Your City," which attempts to answer the common and increasingly large number of questions being asked by a public that is becoming more and more housing conscious. Why Did Congress Create the USHA?; What Is the USHA Plan?; Does Your City Need Public Housing?; Public Housing Achieves Low Costs and Low Rents; Public Housing Is Good Business —these are the chapters of the booklet, effectively presented with action photographs, picture charts and graphs, cartoons and "before and after" illustrations. 88 pp. 20c. (Apply to Supt. of Documents, Washington, D. C.)

Engineering

Issued by the American Institute of Steel Construction, "Specification for the Design, Fabrication and Erection of Structural Steel for Buildings," as revised and adopted, includes the following parts: I, General; II, Material; III, Loads and Stresses; IV, Unit Stresses; V, Design; VI, Fabrication; VII, Erection; VIII, Inspection. 20 pp. 10c. (Apply to the American Institute of Steel Construction, 200 Madison Ave., New York.)

Other Reports Received

BALTIMORE, MD.—Mayor's Committee on Recreation. Recommendations and Summary of Study. May 1, 1938. 32 pp.

BALTIMORE, MD.—Report of Commission on the People's Court. June 17, 1938. 117 pp.

BOSTON, MASS.—"A Highway System for New England." New England Regional Planning Commission, 2100 Federal Building. Sept., 1938. 34 mimeographed pp.

CHICAGO, ILL.—"Helping Make Leisure Time Count in Chicago Communities." Annual Report of the Chicago Recreation Commission. 1938. 12 pp. Send 1½c postage to Municipal Reference Library, City Hall.

COOK COUNTY, ILL.—Annual Message of Clayton F. Smith, Pres., Board of Commissioners and Board of Forest Preserve Commissioners. 1938. 224 pp.

DETROIT, MICH.—First Annual Report, Auditor General. Year ending June 30, 1938. 122 pp.

KENTUCKY.—Annual Report, Department of Revenue. 1937 - 38. 73 pp.

Conventions -- When and Where

Meeting is annual convention unless otherwise designated

JANUARY 16-20.—STILLWATER, OKLA.
Oklahoma Water and Sewage Conference. (Oklahoma A. & M. College.) Sec.-Treas., H. J. Darcy, State Health Department, Oklahoma City, Okla.

JANUARY 18-20.—NEW YORK CITY.
American Society of Civil Engineers. Sec., George T. Seabury, 33 W. 39th St., New York.

JANUARY 19-21.—NEW YORK CITY.
New York State Sewage Works Association. (Hotel McAlpin.) Sec.-Treas., A. S. Bedell, State Department of Health, Albany, N. Y.

JANUARY 20-21.—WASHINGTON, D. C.
National Public Housing Conference. Sec., Miss Helen Alfred, 112 E. 19th St., New York.

JANUARY 23-27.—LAFAYETTE, IND.
Purdue Road School. (Purdue Univ.) Address: Ben H. Petty, Professor of Highway Engineering, Purdue Univ., Lafayette, Ind.

JANUARY 27-28.—WASHINGTON, D. C.
American City Planning Institute. (Hotel Washington.) Exec. Sec., Harold W. Lautner, Hunt Hall, Cambridge, Mass.

FEBRUARY 1-3.—COLUMBUS, OHIO.
National Paving Brick Association. (Deshler-Wallick Hotel.) M'ng Dir., G. F. Schlesinger, 1245 Nat'l Press Bldg., Washington, D. C.

FEBRUARY 7.—NEW BRUNSWICK, N. J.
American Water Works Association—New Jersey Section. Sec.-Treas., H. N. Lendall, College of Engineering, Rutgers Univ., New Brunswick, N. J.

FEBRUARY 15-17.—NEW YORK CITY.
Association of Highway Officials of North Atlantic States. (Hotel Pennsylvania.) Sec.-Treas., A. Lee Grover, State Highway Dept., Trenton, N. J.

FEBRUARY 15-17.—ANN ARBOR, MICH.
Conference on Highway Engineering. (Michigan Union.) Sec., R. E. Morrison, Univ. of Michigan, Ann Arbor, Mich.

FEBRUARY 21-24.—WICHITA, KANS.
Southwest Road Show and School. Mgr., F. G. Wieland, 225 S. Water St., Wichita, Kans.

FEBRUARY 25-MARCH 2.—CLEVELAND, OHIO.
American Association of School Administrators. Sec., S. D. Shankland, 1201 16th St., N. W., Washington, D. C.

FEBRUARY 27, WEEK OF.—LOS ANGELES, CALIF.
The Asphalt Institute. (Biltmore Hotel.) M'ng Dir., J. E. Pennybacker, 801 Second Ave., New York.

MARCH 1-3.—NEW YORK CITY.
American Concrete Institute. (*Roosevelt Hotel.*) Sec., Harvey Whipple, 407 New Center Bldg., Detroit, Mich.

MARCH 7-10.—SAN FRANCISCO, CALIF.
American Road Builders' Association. Engr.-Dir., Charles M. Upham, 952 Nat'l Press Bldg., Washington, D. C.

MARCH 9-10.—TRENTON, N. J.
New Jersey Sewage Works Association. (Stacy-Trent Hotel.) Sec., J. R. Downes, Bound Brook, N. J.

APRIL 10-12.—MEMPHIS, TENN.
American Water Works Association—Kentucky-Tennessee Section. Sec.-Treas., Howard D. Schmidt, 420 6th Ave., N., Nashville, Tenn.

APRIL 12-14.—TORONTO, ONT.
American Water Works Association—Canadian Section. (Royal York Hotel.) Sec.-Treas., Dr. A. E. Berry, Dept. of Health, Toronto, Ont.

APRIL 25-26.—INDIANAPOLIS, IND.
American Water Works Association—Indiana Section. Sec., J. A. Bruhn, Box 855, Indianapolis, Ind.

APRIL 27-28.—DAYTON, OHIO.
American Water Works Association—Ohio Section. Sec., T. R. Lathrop, State Dept. of Health, Columbus, Ohio.

MAY 8-13.—CHICAGO, ILL.
National Fire Protection Association. M'ng Dir., Franklin H. Wentworth, 60 Batterymarch St., Boston, Mass.

MAY 15-17.—BOSTON, MASS.
National Conference on Planning. (Hotel Statler.) Joint annual conference of American Society of Planning Officials, American Planning and Civic Association, National Economic and Social Planning Association and American City Planning Institute. Conference Dir., Miss Elisabeth H. Herlihy, Room 24, State House, Boston, Mass.

MAY 18-20.—TACOMA, WASH.
American Water Works Association—Pacific Northwest Section. Sec., Fred Merryfield, Oregon State College, Corvallis, Ore.

JUNE 11-15.—ATLANTIC CITY, N. J.
American Water Works Association. (Hotels Ambassador and Chelsea.) Sec., Harry E. Jordan, 22 E. 40th St., New York.

JUNE 13-16.—MILWAUKEE, WIS.
Smoke Prevention Association. Sec., Frank A. Chambers, 1411 City Hall Square Bldg., Chicago, Illinois.

JUNE 20-22.—BUFFALO, N. Y.
American Public Welfare Association. Dir., Fred K. Hoehler, 1313 E. 60th St., Chicago, Ill.

JUNE 20-22.—PROVIDENCE, R. I.
New England Association of Fire Chiefs. Sec., John W. O'Hearn, Watertown, Mass.

JUNE 28-30.—STATE COLLEGE, PA.
Pennsylvania Water Works Operators' Association. Sec.-Treas., I. M. Glace, 22 S. 22d St., Harrisburg, Pa.

JULY 2-6.—SAN FRANCISCO, CALIF.
National Education Association of the United States. Exec. Sec., Willard E. Givens, 1201 16th St., N. W., Washington, D. C.

JULY 17-22.—OGDEN, UTAH.
National County Officers' Association. Pres., George F. Breitbach, Court House, Milwaukee, Wisconsin.

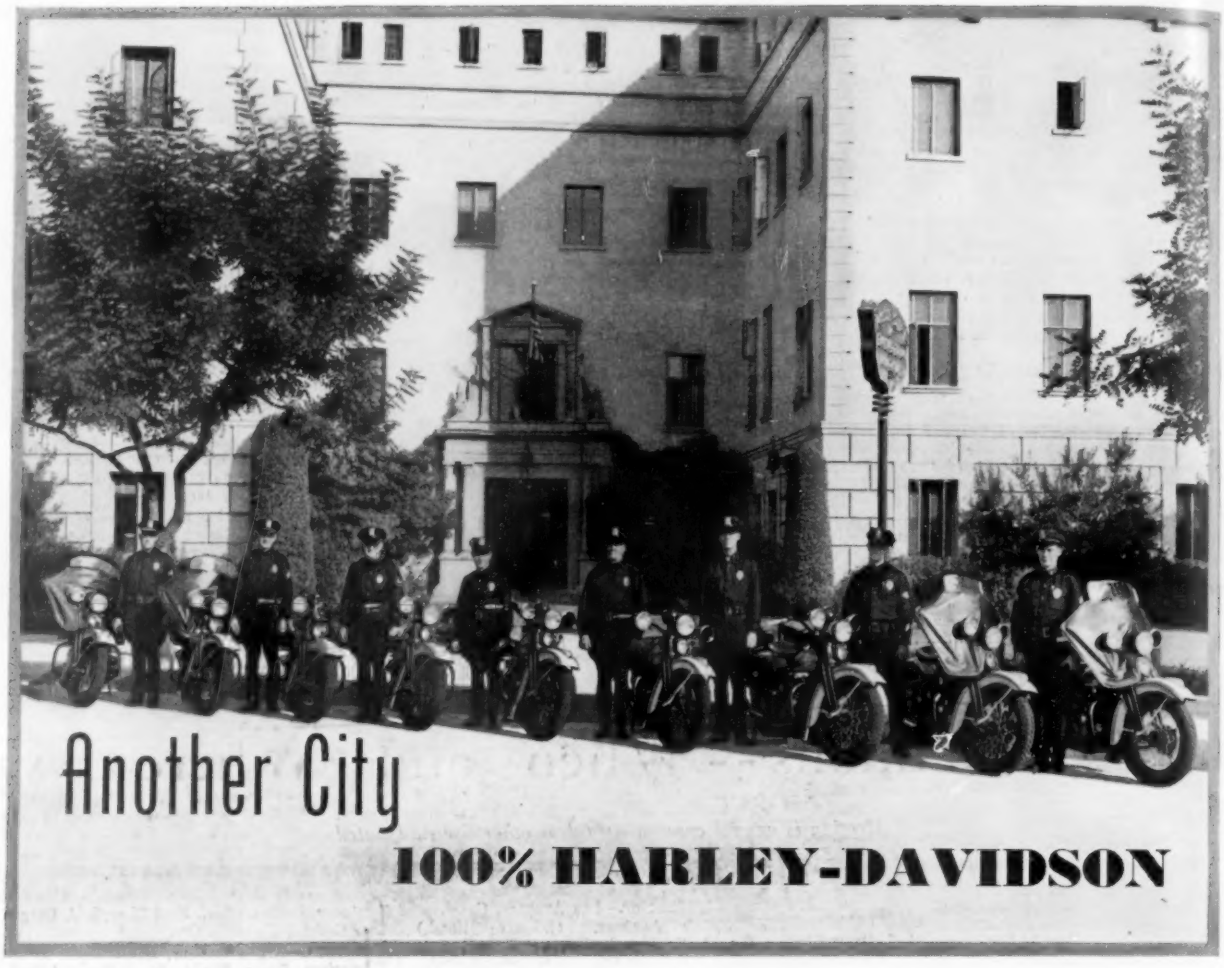
SEPTEMBER 12-14.—KANKAKEE, ILL.
Illinois Municipal League. Sec., A. D. McLarty, 500 E. Capitol Ave., Springfield, Ill.

SEPTEMBER 18-21.—OAKLAND, CALIF.
League of California Municipalities. Sec., Richard Graves, 223 City Hall, San Francisco, Calif.

OCTOBER 11-13.—KANSAS CITY, MO.
American Water Works Association—Missouri Valley Section. Sec., Earl L. Waterman, Univ. of Iowa, Iowa City, Iowa.

OCTOBER 16-19.—DALLAS, TEXAS.
American Water Works Association—Southwest Section. Sec.-Treas., Lewis A. Quigley, 3320 W. Berry St., Fort Worth, Texas.

OCTOBER 16-20.—CINCINNATI, OHIO.
National Association of Public School Business Officials. Sec., H. W. Cramblet, Board of Education, Pittsburgh, Pa.



Another City
100% HARLEY-DAVIDSON

PASADENA, California, never does things by halves. Proof of this is her Tournament of Roses and the tremendous success of the Rose Bowl games. And when Pasadena equips her police with motorcycles she wants the finest, most efficient machines that money can buy—and chooses Harley-Davidsons 100%! What's more, Pasadena insists that her motorcycles be fully equipped and complete with radios, as shown by the 9 new Harley-Davidson Police Motorcycles recently purchased.

• • •

More than 3500 Departments the country over have purchased Harley-Davidsons! Such widespread recognition should be your clue to investigate the outstanding features of the 1939 Harley-Davidson Police Motorcycles. Ask your Harley-Davidson dealer to bring a new model over for your inspection. Harley-Davidson Motor Co., Milwaukee.

HARLEY-DAVIDSON
THE POLICE MOTORCYCLE

News and Illustrations

Items of Interest to City, Town and County Officials, and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings

New Meter Tester for All Flows

Experience has proved that the testing of water meters to check their accuracy substantially increases water revenue; it often reveals the real reason for large pumpage losses; in many cases it reduces the gallonage pumped, thereby reducing pumping costs, and increases net revenue; in fact, where water departments are "in the red," such testing sometimes more than balances the books.

The new No. 15 Neptune Testing Bench, made by the Neptune Meter Co., 50 West 50th Street New York, is designed to put low-cost testing equipment well within the reach of every water department. It is simple and compact, designed to test accurately water meters from ⅝- to 2-inch sizes, of all types and makes. It will test at one time two ⅝-, ⅝- x ¾-, or ¾-inch meters. It will test one 1-, 1½- or 2-inch meter. All necessary fittings for such meters are included. The equipment consists of a quickly adjustable test bench, with graduated tanks, either a 1-cubic-foot and a 10-cubic-foot tank, or a 10-gallon and a 100-gallon tank.

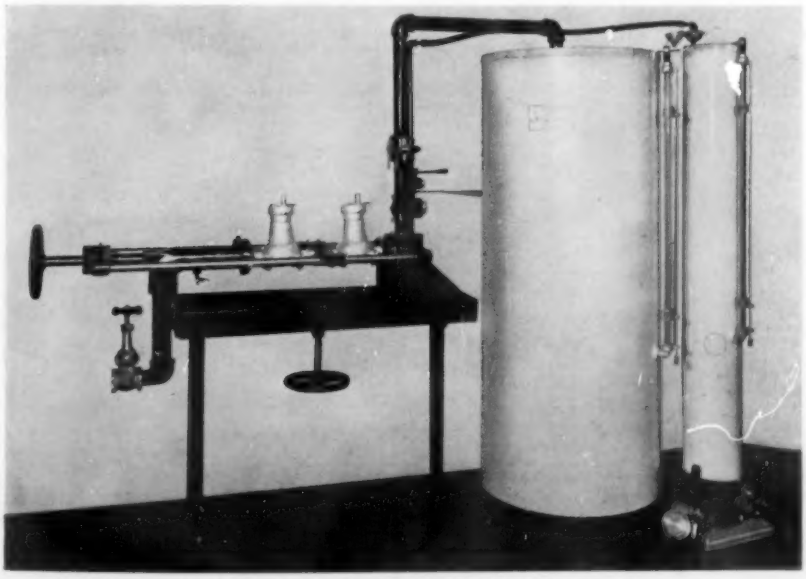
This test bench has several special operating features that make for great ease of handling and accuracy of results. These include glass funnels to help regulate the flow into the small tank at the rate of ¼-gallon or 1 gallon a minute; protected and removable gage glasses with calibration markers that can be seen from either side; wipers to clean the inside of the gage classes; quick-acting valves; a meter-supporting table and a rapid clamping device for ease and speed of set-up and removal of meters; a means of setting the tanks accurately in a vertical position, thereby insuring a true reading on each gage-glass. A plumb line on each glass serves further as a constant check on the position of each tank.

The new Neptune No. 15 Test Bench is low in cost and quickly pays for itself in the time it saves and the results it accomplishes.

Sludge Dewatering by Centrifuges

The American Centrifugal Corporation, 74 Trinity Place, New York, has issued an invitation to municipal officials interested in sewage treatment to visit its new demonstrating plant at Elizabeth, N. J., where it has installed three sizes of centrifuges for the dewatering of sewage and industrial sludges. Municipal officials writing to the American Centrifugal Corporation for appointments will receive a prompt reply.

By the use of a centrifuge, digested sludge can be dewatered to a moisture content of 50 per cent. The cost of an American centrifuge installed is a small part of the saving in land and equipment which are not necessary when using this method of dewatering. The city of New York has purchased and operated an American centrifuge continuously on fine sewage screenings since January 3, 1938. A folder on this type of centrifuge is available free on request.



THE NEW NO. 15 NEPTUNE METER TESTING BENCH

THE NEW PERMUTIT AUTOMATIC VALVE FOR DE-SLUDGING CONTAINERS

New Automatic Valve for Sludge Removal

A new automatic de-sludging valve has been developed for use in its hot process lime soda water softener by The Permutit Co., 330 West 42nd Street, New York, for use where sludge must be removed periodically from the settling tank. This new automatically operated valve permits the flow of sludge from any container by gravity or under pressure.

The automatic operation of such a valve is highly desirable because periodic de-sludging by hand is apt to be overlooked or postponed for such an interval as to impair the efficiency of operation. With automatic de-sludging this is accomplished under precise control, assuring uniform conditions. The valve is motor-operated and of simple construction. It is described in detail in a booklet which may be secured gratis from Permutit.

New Comminutor Bulletin

A new complete illustrated 20-page bulletin has just been issued by Chicago Pump Co., Sewage Equipment Division, 2300 Wolfram Street, Chicago, Ill., dealing with the Chicago Comminutor, which is placed in the flow of sewage entering a plant to cut all coarse sewage matter into small settleable solids without removing them from the flow of sewage, thus doing away with screenings disposal. There are over 350 Chicago Comminutor installations in over 200 cities in the United States. The last page of this new Bulletin 185 lists these installations by number, size, location, and the consulting engineer who specified the installation. Copies of this very complete bulletin may be secured direct from Chicago Pump Co.

The sow's ear *AND THE* V·8 ENGINE

THE proverb says that you can't make a silk purse from a sow's ear. The quality just isn't there. It's the same with trucks. No truck can turn in a record for reliable, economical service without *basic quality*.

We don't point to the Ford V-type 8-cylinder engine as the chief advantage of Ford Trucks. It's only a symbol of the extra value that a Ford gives you. The full torque-tube drive, the 47 different kinds of steel, the extremely fine tolerances to which vital parts are held—any of these points of quality or a dozen others will convince you that Ford Truck construction is *quality* construction.

The Ford Motor Company is in the truck manufacturing business—and has been for twenty-one years. A point-by-point examination of a 1939 Ford V-8 Truck or Commercial Car will convince you that there is no unit in the world of comparable size and price that is better designed and better built to serve you.

CHECK YOUR TRUCK AGAINST THESE QUALITY FORD FEATURES!

★ **V-8 ENGINES—95, 85, 60 HP.**—Smooth, dependable low-cost power. Quality materials and precision workmanship for efficient operation and long life.

★ **SEMI-CENTRIFUGAL CLUTCHES**—Non-tiring pedal action. Centrifugal force provides tremendous power-transmitting capacity. Up-keep costs kept at a minimum.

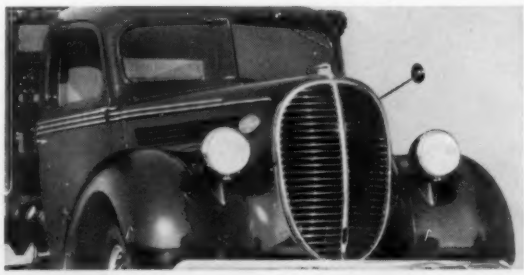
★ **STURDY, TROUBLE-FREE TRANSMISSIONS**—Large roller and ball bearings for all forward speeds reduce friction, save power. Oil-hardened chromium-steel gears for long service.

★ **FULL TORQUE-TUBE DRIVE**—Springs relieved of driving and braking stresses provide better cushioning of truck and its load. Shackle-bolt wear reduced, spring life prolonged.

★ **RUGGED REAR AXLES**—Driving pinion is straddle-mounted to maintain gear-tooth alignment. All truck axles are full-floating, with weight carried on axle housing—none on axle shafts. These features increase dependability and long service, reduce up-keep expense.

★ **BIG, POWERFUL HYDRAULIC BRAKES**—Equalized braking action for straight stops. Big brake-drum diameters and large lining areas for long brake life and low-cost maintenance.

In every detail, the quality of all Ford bodies matches the high quality of Ford chassis. Their exceptional durability means long service with low up-keep cost.



FORD V·8 TRUCKS *and Commercial Cars*

FORD MOTOR COMPANY NOW OFFERS FORD V-8 CARS AND TRUCKS, MERCURY, LINCOLN-ZEPHYR AND LINCOLN MOTOR CARS

When you write for that catalog, kindly mention THE AMERICAN CITY.

THE GIANT V-PLOW AND REAR-MOUNTED SNOW WING FOR THE AUSTIN-WESTERN "99" MOTOR GRADER

Large Snow-Plows for Power Graders

A large hydraulically operated V-plow with an unusually strong all-welded framework has been announced by The Austin-Western Road Machinery Co., of Aurora, Ill., for mounting on the Austin-Western "99" motor grader to use the four-wheel drive and steer advantages of that motor grader to remove deep snow at higher speed. This plow "cuts under" as it pierces the drifts, elevating the snow over its long curved moldboards, with a minimum of resistance, and finally throwing it outward to clear the plow.

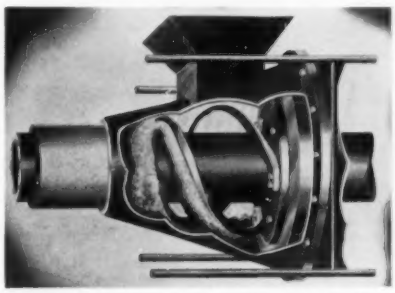
The giant "99" V-plow opens a path 9 feet 2 inches wide, and the plow itself is 12 feet 7 inches wide at the tips of the blade. It stands 4 feet 4 inches high at the top of the nose, and 7 feet 2 inches high at the blade tip. The two inside runners are of hard cast iron, and the two outside runners of cast steel.

For opening roads with drifts and where the plowed snow has been piled high, a rear-mounted snow wing is available for the "99" motor grader to push the piled snow farther to the sides. These wings are operated hydraulically and controlled from within the cab. It is possible to raise or lower the end of the wing to any desired position. The wing is mounted independently of the moldboard and does not interfere with its operation or that of the blade circle. The grader moldboard can be raised or lowered, shifted either way or reversed in the customary manner. By varying the length of the two telescopic shafts that rigidly support the wide end of the wing, the angle of cut or tilt can be changed to suit any snow condition. The rear wing supports are secured to the bumper of the motor grader with U-bolts, while the forward bracing is bolted to the grader frame.

Permanent Protection Jackets Pipe Lines

A new process of coating pipe with cement or bituminous concrete has recently been introduced by the American Pipe & Steel Corporation, Alhambra, Calif., under the name Armor-Clad. The method of application is by a specially designed, patented machine, producing a continuous, dense, uniform outer jacket forming a seamless bond with the pipe, intended to be permanently effective.

This process is based on the theory that any properly prepared material can be made to adhere tightly to pipe if it is submitted to continuous rubbing pressure. Coatings applied by the Armor-Clad process, after being submitted to tremendous pressure, are held firmly in position by atmospheric pressure because of the intimate contact of steel and plastic. Subjected to severe tests under bad conditions, Armor-Clad has proved to be durable, and impervious to corrosion, electrolysis, abrasion and soil stresses. In one case a pipe that had 20 per cent of its area completely rusted away was rehabilitated and made serviceable; its newly acquired mechanical strength was supplied by concrete, enabling it to successfully withstand pressures as high as 90 pounds.



THE ARMOR-CLAD MACHINE FOR APPLYING PROTECTIVE COATINGS TO THE EXTERIOR OF STEEL PIPE

One of the most unusual factors in the economy of application is that pipe lines can be coated in the trench without interruption of service in any way. The light steel construction of the machine facilitates its being taken into any territory, no matter how difficult the terrain. It is adjustable to various sizes of pipe and can apply coatings of thicknesses ranging from $\frac{5}{8}$-inch to 2 inches.

New Sheet Metal for Highway Signs

A new kind of galvanized sheet metal with a special phosphate coating bonded with the zinc has been announced by The American Rolling Mill Co., Middletown, Ohio. The advantages claimed for the new sheet metal are greater paint adherence, lower initial cost, and greater resistance to sharp blows or flying stones or the "practice bullets" of traveling sportsmen. Signs made of Armco Paintgrip, as the metal is called, are also said to remain legible longer than signs of ordinary galvanized metal.

The special surface of the sheet gives greater paint adherence and insulates the paint from the drying-out effect of zinc. Spalling or powdering of some galvanized sheets during the fabrication of signs, often reported by fabricators, is said to be prevented by the use of this metal.

The new sheet metal already is being used widely for commercial signs, heating and ventilating ducts, shower stalls, truck bodies, gutters and downspouts.

Snow Sweepers for Tractor Mounting

The Hough Tractor Snow Sweeper, made by The Frank G. Hough Co., 919 North Michigan Avenue, Chicago, Ill., is designed for use with nearly all makes of industrial wheeled tractors, and is used by many cities and towns for sweeping snow from sidewalks, driveways, crosswalks, streets and parkways. The rotary broom is easily attached to the tractor, and the high speed of these units makes them particularly effective in parks and cemeteries, and on skating rinks, where they may be used for short-time or all-day sweeping.

A descriptive bulletin, No. 107, covers both the one-way and Tu-way models.

THE HOUGH TRACTOR SNOW SWEEPER

TRADE-IN VALUE

ONLY ONE PAVEMENT HAS ANY

BRICKBATS WIN BOUQUETS AT JACKSONVILLE AIRPORT

As you see here, (Jacksonville, Fla.) uses brickbats for paving around its municipal airport buildings. They were leftovers when brick streets that had been in service more than 25 years were relaid. The white filler is sand. City Engineer W. E. Sheddan has been a pioneer in this work long before the present program of government work relief. During the last two years, Jacksonville WPA projects have included 180,000 square yards of this work.

● Big and little towns all over the country have been trading in their veteran brick pavements and, for a nominal cost, getting brand-new 1939 model brick pavements with the latest improvements.

Many of these brick pavements were upwards of 35 years old, and the brick had a 75% or greater trade-in value. Salvage value, some call it.

But the point is, it must be a brick pavement to get this trade-in allowance. No other modern pavement has it.

A material that can give two-score years of service in a street pavement and then be largely reusable has what present day traffic needs.

Brick has the lowest upkeep and longest life. Its high trade-in value is a "plus" that no other pavement can offer. National Paving Brick Association, National Press Building, Washington, D. C.

BRICK

33RD ANNUAL MEETING
NATIONAL PAVING BRICK ASSOCIATION
COLUMBUS, OHIO—FEB. 2-9

FOR NEW CONSTRUCTION OR RESURFACE JOBS

When you write for that catalog, kindly mention THE AMERICAN CITY.

Machines for Winter Street Maintenance

Good Roads Machinery Corporation, Kennett Square, Pa., has recently issued a series of new bulletins on its snow-plows and sand spreaders, which are important machines for the maintenance of city streets, during the dangerous days of winter.

Catalog 102 contains 68 pages of information on the complete line of Good Roads Champion snow-plows, describing and illustrating them.

Bulletin 11138 describes Model 525 V-plows and the Model 45 front-mounted wing with full power-hydraulic-control for Marmon-Herrington equipped Ford trucks.

Bulletin 2838 describes the full power-hydraulic-controlled Model 572 Good Roads Champion snow-plows for 5-10-ton trucks.

Bulletin 1938 describes Good Roads spreaders, of which there are six types for spreading surface materials from dump-trucks to combat sleet and ice. The "Safety Seat" is a feature which should not be overlooked, since it provides a safe working position for an operator in the rear of a truck dump-body.

Bulletin 11,238 describes and illustrates the popular "Highway Special" series of Good Roads plows. These are one-way type plows equipped with the automatic safety blade trip. Introduced for the first time on the market are hydraulic casters and the new patented Humphrey blade release.

Any or all of these bulletins will be sent free on request to readers of THE AMERICAN CITY mentioning this item and the bulletin by number.

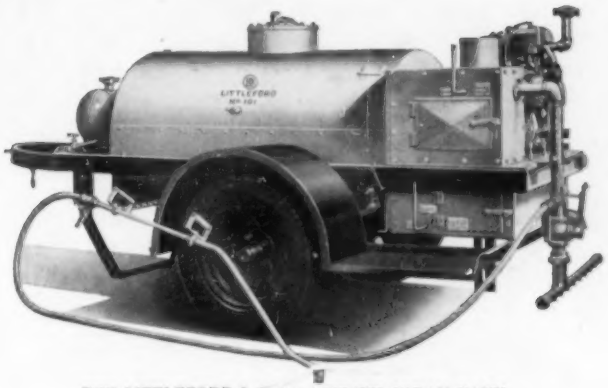
Standby Lighting for Airports

Tests have recently been completed and equipment released for sale comprising a complete standby lighting system for airports to provide illumination for an airport at times of power failure. The equipment is portable, the entire system being of such light weight that it can be flown from point to point in a plane. This equipment, made by Lights, Inc., 3508 Avalon Boulevard, Los Angeles, Calif., is powered by small rechargeable batteries of the non-spillable aviation type and provides a two-headed rotating beacon, and boundary, obstruction and approach lights. The heart of the system is a motor-driven generator that operates the beacon and recharges the batteries when the lights are not in use. Its secondary function is to provide power to light an air traffic-control projector and several types of flood and signal lights that are additional units of the standby system. The generator also can be used to power communications radio equipment when the main lines fail.

This Aeroland system is compact and simple, is made of cast aluminum and aluminum tubing, and conforms to Government standards on materials and construction. The system packs in four fitted cases suitable for handling, and occupies 36 cubic feet of stowage space and weighs 700 pounds complete with spare parts.

The units have a large demand for use on outlying fields isolated from a power supply and on fields where night traffic does not justify complete permanent lighting systems. It is reported that the cost of the PBA system is less in most instances than the single item of parkway cable used in a permanent installation of airport lighting.

BOUNDARY, BEACON AND GENERATOR UNITS OF THE PBA LANDING AREA LIGHTING SYSTEM



THE LITTLEFORD NO. 101 UTILITY SPRAY TANK

Five New Bulletins on Water Treatment

A worth-while series of new literature on water-treatment processes and equipment has been announced by The Permutit Co., 330 West 42d St., New York.

Bulletin No. 2118 is devoted to Permutit Zeo-Karb for water conditioning. This is a new zeolite material practically non-siliceous, and resistant to aggressive attack even by acid solutions. It is particularly adapted to eliminate hardness and simultaneously reduce alkalinity and total solids for boiler feed water conditioning and the treatment of municipal water supplies in cases where the alkalinity is very high.

Bulletin No. 2142 describes the uses and operation of the Permutit Degasifier. This equipment is used to remove corrosive or malodorous gases such as dissolved carbon dioxide or hydrogen sulphide, and may be used to serve the combined functions of carbon dioxide removal and oxygen introduction for the precipitation of dissolved iron salts in water.

Bulletin No. 2154 is devoted to Permutit operating cabinets and tables for filtration plants, equipped with master valve control for filters and softeners, which may be had fully automatic, semi-automatic or manually operated.

Bulletin No. 2111 describes the Permutit rate-of-flow indicator, which shows a filter operator the rate of filtration and softening for his guidance in the operation of filters.

Bulletin No. 2153 describes the well-known Permutit multiport valve control for pressure filters and softeners, which has made such a name for itself in the automatic operation of Permutit zeolite water softeners.

New Circular Tank for Sewage Treatment

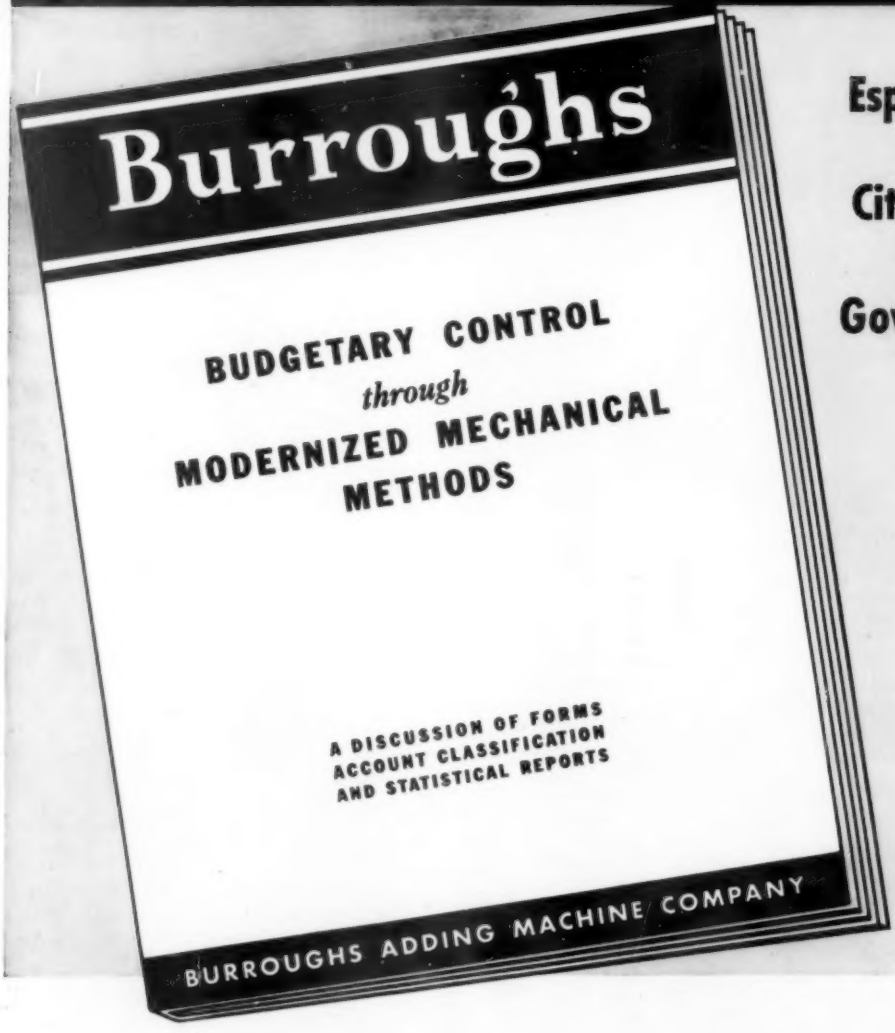
A new self-contained, low-cost unit for the clarification and aeration of sewage by the activated sludge process in a single circular tank, the Currie Claraetor, has been announced by The Dorr Co., Inc., 570 Lexington Avenue, New York. Aeration takes place in an outer, annular compartment, and clarification in an inner circular compartment equipped with Sifeed clarifier mechanism.

The Currie Claraetor is especially adapted to the requirements of municipalities with populations ranging from 5,000 to 15,000, and it gives results comparable with large, multiple-tank activated sludge plants and generally costs less to install and operate, according to The Dorr Co. This unit was developed by F. S. Currie, consulting engineer, San Bernardino, Calif., and is marketed by The Dorr Co. It is described in detail in leaflet No. 6581-C which may be secured direct from Dorr by mentioning this item.

Go West, Young Man!

Young and old are planning to attend the two big conventions in California: Asphalt Institute, Los Angeles, February 27; A.R.B.A., San Francisco, March 7.

A PRACTICAL GUIDE TO BUDGETARY CONTROL.



Especially designed for City, County, State and Federal Government Offices

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Educational Institutions

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Mental Institutions

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Penal Institutions

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Hospitals etc.

This helpful book describes how to apply modern methods in producing necessary records and reports of budget operations and fund balances. It outlines a practical basis for the classification of accounts; describes budgetary practices; gives procedure for recording and controlling revenues and expenditures, and maintaining up-to-date budget balances. Methods are included for preparing prompt reports and essential statistical data on comparative forms, so that officials can make quick checks against income and expense estimates and reports of previous periods.

Ask your local Burroughs representative to review this manual with you. Telephone the local Burroughs office, or mail the coupon.

Burroughs Adding Machine Company
6671 Second Blvd., Detroit, Mich.

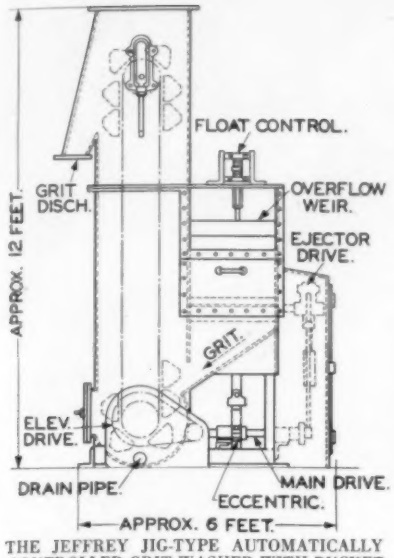
I am interested in Budgetary Control through modernized mechanical methods, and would like to see your new manual on this subject.

Name_____

Title_____

Address_____

Do you mention THE AMERICAN CITY? Please do.



THE JEFFREY JIG-TYPE AUTOMATICALLY CONTROLLED GRIT WASHER WITH BUCKET ELEVATOR FOR DEWATERING THE WASHED GRIT

Sewage Grit Washed Clean

A new "jig type" grit washer, which is fully automatic and requires only 24 square feet of floor space, has been announced by The Jeffrey Manufacturing Co., Columbus, Ohio, for installation at sewage-treatment plants to thoroughly wash grit from sewage grit chambers and make it available for fills, walks, or roadways.

The operation of this washer produces a clean grit of good appearance at a relatively low cost. The manufacturer states that the unit will treat up to 6 tons per hour, and that the washed grit will contain less than 1 per cent of putrescible solids and be free from objectionable odors and unsightly appearance. The new unit is reported to require less than 2 hp to operate, and the water consumption is unusually low, the maximum being 4 pounds of water to 1 pound of feed at the rated capacity. Organic solids are returned with the wash water to the grit channel.

Complete engineering data on this "jig type" grit washer may be obtained by writing direct to the manufacturer, mentioning this item.

Dorr Personnel Note

D. S. McAfee, Vice-President and General Sales Manager, The Dorr Co., Inc., New York City, leaves New York early this month on a two months' business trip to South America, flying direct to Rio de Janeiro to meet E. B. Besselievre, Dorr Co. Resident Engineer, and the staff of Oscar Taves & Co., Dorr agents in Brazil. Mr. McAfee's further plans are tentative, but may include visits to the Argentine and the West Coast of South America.

Frank Bachmann, Manager, Sanitary Engineering Sales Division, has transferred his headquarters from the Chicago office to the New York office at 570 Lexington Avenue. He will continue to direct all Dorr sanitary engineering sales from New York, as he formerly did from Chicago.

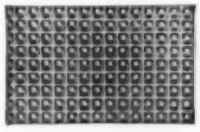
Paving Brick Meeting

The thirty-third annual meeting of the National Paving Brick Association will be held in Columbus, Ohio, February 1, 2 and 3, 1939, at the Deshler-Wallick Hotel. In addition to the business meetings, many of the sessions will be open to the general public. The program includes papers and discussions by prominent engineers and contractors. Recent developments in manufacturing, in the technique of testing and in construction practices will be discussed. Among the subjects to be included are vibrated monolithic pavement, and the additional experience with reinforced slabs and with the longitudinal method of laying.

C. C. Blair, head of the Metropolitan Paving Brick Co., Canton, Ohio, is President, and George F. Schlesinger is Chief Engineer and Secretary of the National Paving Brick Association.

Reflector Material for Highway Signs

A new development in processed metals and foils has recently been introduced by the Mir-O-Ray Division of the Arcturus



THE APPEARANCE OF MIR-O-RAY REFLECTORS

Radio Tube Co., Newark, N. J., for use on highway signs, as well as for display purposes. The special panoramic mirror structure of Mir-O-Ray traps light from any source and from any angle. It gives a brilliant reflection day or night without cost for electric current. It is said to be resistant to the elements and rust, and to be particularly adaptable for highway signs and railway signals. It is supplied in sheets, strips, letters, numbers and characters. Samples and literature will be supplied on request by the Arcturus Radio Tube Co., Newark, N. J., to readers mentioning this item.

Greater Speed Possible in Water Softening

Improvements in water softening and particularly in reducing the holding-time requirements for chemical and physical reactions and clarification are described in a new Bulletin, No. 1820, recently issued by International Filter Co., 59 East Van Buren Street, Chicago, Ill. The bulletin describes the principles of the Infilco Accelator, and its operation is illustrated diagrammatically. Photographs of models of a conventional lime process softening plant and an Accelator for the same typical application strikingly show the saving in space and excavation. Several views of municipal installations further show the compactness of the unit and its flexibility in design which permits varying architectural treatment.

The Accelator is not a mere departure in design of treating basin or softener apparatus. While retaining all those advantages found in the conventional lime or lime-soda processes, it offers many advantages. It is a new type of equipment that softens water more completely in shorter time within smaller space and at a lower cost than was possible with previous methods or facilities, according to the manufacturer.

Barber Asphalt Moves Offices to Perth Amboy

Barber Asphalt Corporation has completed the construction of additional office building space, with added equipment, providing for the removal of the general offices from Philadelphia to the plant at Barber, N. J. The new addition is to the building fronting State Street in Barber, located on the Central Railroad of New Jersey in the northern limits of Perth Amboy. Removal of the administrative offices from Philadelphia where they have been for the last 25 years is in the interest of efficiency and economy. James E. Auten, President, in announcing the removal said: "Our administrative and plant facilities have been separated for many years and there was no good reason for this practice. Absentee management does not make for efficient conduct of manufacturing operation. This move means that we are all to become a part of the Barber community and that management and operation are to be more closely coordinated."

THE NEW BARBER ASPHALT CORPORATION OFFICE BUILDING AT BARBER, N. J.

HAZARD PERMEX

THIN WALL RUBBER INSULATION

is used where it is necessary to get a great number of small, separately insulated conductors into a limited space. Permex is ideal for multi-conductor telephone cables, supervisory control, fire and police alarm and other low voltage circuits in limited duct space.

Hazard Permex insulation is made of best grade Hevea rubber in combination with carefully selected mineral and organic ingredients. Permex meets IMSA Specification #17-1937 for Thin Insulated Signal Cable.

PERMEX CHARACTERISTICS

1. TOUGHNESS AND RESILIENCY. Permex rubber insulation has a tensile strength of over 2500 lbs. per square inch and will elongate more than 500%. With only a thin wall of insulation on each conductor these qualities are necessary so as to enable it to withstand the compression and other strains incident to manufacturing processes.

2. NON-CORROSIVE. Since the conductors in Permex Cables are usually very small, any corrosion of the copper by chemical reaction would seriously impair the life of the cable. Permex insulation is so compounded and processed that there is no tendency to corrosion even after many years' service.

3. ABILITY TO STAND EXPOSURE. The insulation is so compounded and cured as to give it great resistance to oxidation. It will stand exposure to light and air without early hardening or cracking.

4. FREE STRIPPING. Permex insulation fits tightly around the conductor, but does not adhere to such an extent as to make it difficult to splice or connect.

5. LONG LIFE. At the conclusion of the standard four-day oxygen bomb accelerated age test, Permex insulation has a tensile strength of 2000 lbs. per square inch or more, giving indication of the long life that may be expected under actual service conditions.

HAZARD INSULATED WIRE WORKS

DIVISION OF THE OKONITE CO.

WORKS: WILKES-BARRE, PENNSYLVANIA

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GEORGE H. BUCHER, PRESIDENT, WESTINGHOUSE ELECTRIC & MFG. CO.

Year-End Statement by Westinghouse Head

George H. Bucher, President, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., released a year-end statement on December 31 reading as follows:

"The year 1938, though not a big year as far as business is concerned, was notable for important strides in research and engineering. In the electrical field, it witnessed the introduction or wider use of such contributions as the Sterilamp, which opens up new possibilities in the control of bacteria, moulds and diseases; the Precipitron, which makes it possible for the first time to clean air by electricity with thoroughness; topping turbines and hydrogen-cooled generators which will increase the efficiency of power houses; advances in the study of nuclear physics, which promise important new knowledge about the structure of matter; and many other major advances, including new developments in metallurgy and insulation.

"If general business becomes better during 1939, the electrical industry is in excellent position to measure up to its opportunities. The possibilities of electricity as a servant of industry and humanity are only beginning to be realized."

New Ohio Salesman for Rensselaer Valve

Rensselaer Valve Co., Troy, N. Y., has announced the appointment of James A. Dorrance as its sales representative at Columbus, Ohio, succeeding C. E. Osborn.

O'Brien Promoted in G. E.

W. V. O'Brien has been appointed Assistant to the Manager of the Lighting and Cable Division of the Central Station Department, General Electric Co., Schenectady, N. Y., according to a recent announcement by F. H. Winkley, Manager of the Division. The promotion, which was made early in December, transfers Mr. O'Brien from the Customer Division of the Central Station Department.

New Executive Head of Ohio Brick Association

Victor K. Gamble has been made Secretary and Chief Engineer of the Ohio Paving Brick Manufacturers Association, which is the Ohio Region of the National Paving Brick Association. A graduate in civil engineering at Ohio State University, he has since engaged in construction and railway construction, and in 1931 began his services with the Ohio State Highway Department as Assistant Materials and Testing Engineer, resigning to accept his present position.

The offices of the Ohio Paving Brick Manufacturers Association are in the Hartman Building, Columbus, Ohio.

A-C Branch Office Opens in Newark, N. J.

A new branch office and warehouse of the Allis-Chalmers Manufacturing Co., Milwaukee, Wis., has been established in the Industrial Office Building, 1060 Broad Street, Newark, N. J. This will be a branch of and under the jurisdiction of the New York district office of the company. It is expected to provide additional service in the Newark area for Allis-Chalmers motors, pumps, texrope drives, power transmission units, and other equipment in the company's line. C. A. Pihl has been appointed Newark Branch Office Manager.

New Elections to Koppers Board

R. H. McClintic, Pittsburgh, Pa., and John N. Marshall, Bethlehem, Pa., have been elected to the board of trustees and executive committee of Koppers United Company, which controls Koppers Company, Pittsburgh, Pa. Mr. McClintic is Assistant to the President of Koppers Company and is in charge of advertising and sales promotion. He came to Koppers from the McClintic-Marshall Corporation in 1931, and was made Assistant to the President in 1936.

R. H. McCLINTIC, ASSISTANT TO THE PRESIDENT OF KOPPERS COMPANY

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Peerless Water and Oil-Lubricated Pumps dominate the field of turbine pump development. Each type incorporates distinctive features that contribute to long life and maintained efficiency, including such outstanding developments as water-lubricated double-bowl bearings, double-sealed bowls, hard chrome shaft bearing contacts on the water-lubricated type and many other exclusive features.

Thus Peerless is prepared to meet your water requirements with a pump exactly suited to your needs—built by precision methods, using the heaviest and finest materials, protected at every point against wear and abrasion. Bulletin P-141 completely describes Peerless Water and Oil-Lubricated Pumps. Write for free copy.

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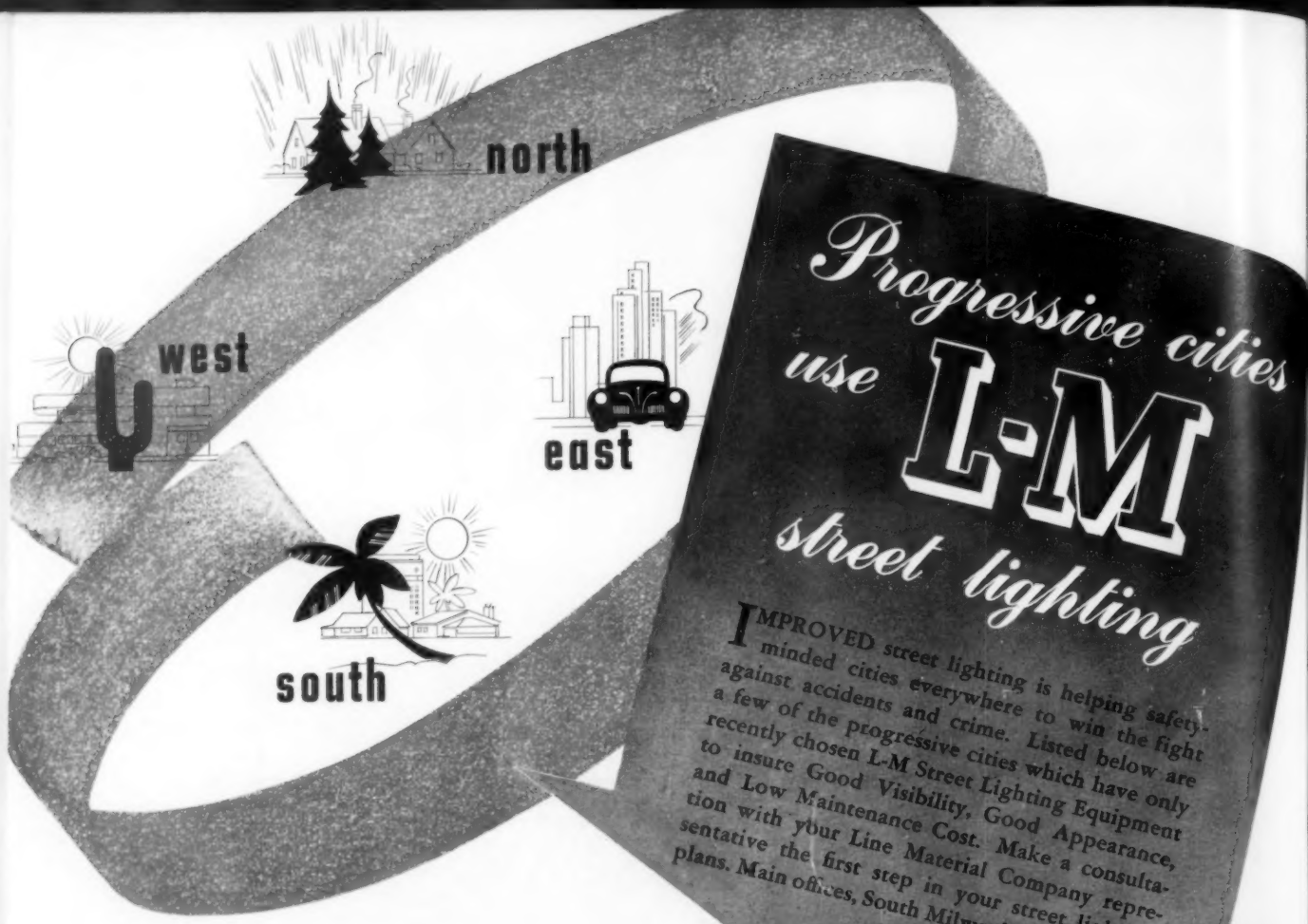

Progressive cities use L-M street lighting

IMPROVED street lighting is helping safety-minded cities everywhere to win the fight against accidents and crime. Listed below are a few of the progressive cities which have only recently chosen L-M Street Lighting Equipment to insure Good Visibility, Good Appearance, and Low Maintenance Cost. Make a consultation with your Line Material Company representative the first step in your street lighting plans. Main offices, South Milwaukee, Wisconsin.

CINCINNATI, OHIO

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Allegan, Michigan
Alton, Illinois
Arlington, Wash.
Asbury Park, N. J.
Atlantic City, N. J.
Baltimore, Md.
Bar Harbor, Maine
Bar Harbor Sprgs., Mich.
Belvidere, N. J.
Bradley Beach, N. J.
Butler, Pennsylvania
Canastota, New York
Cedar Rapids, Iowa
Cincinnati, Ohio
Columbus, Georgia
Columbus, Ohio
Connersville, Ind.
Constantine, Mich.
Decatur, Alabama
Des Moines, Iowa
Dover, New Jersey
Ellsworth, Maine
Forest Park, Illinois
Fort Atkinson, Wis.
Franklin, Pa.
Grand Rapids, Mich.
Greensboro, N. C.
Green Cove Sprgs., Fla.
Hillsboro, Ohio
Indianapolis, Indiana
Jacksonville, Florida
Joliet, Illinois
Kalamazoo, Mich.
Knoxville, Tenn.
Lake Crystal, Minn.
Land o' Lakes, Wis.
La Plata, Missouri
Longmont, Colorado
Los Angeles, Cal.
Marquette, Mich.
Mason City, Illinois
Memphis, Tennessee
Menominee, Mich.
Minneapolis, Minn.
Newark, Delaware
New London, Ohio
New Orleans, La.
Newton, Iowa
North East Harbor, Me.
Paulsboro, N. J.
Pittman, N. J.
Remsen, Iowa
Russellville, Ala.
Salem, New Jersey
Salt Lake City, Utah
Seagirt, New Jersey
Shreveport, Louisiana
Shrewsbury, N. J.
Sioux Falls, S. D.
South Milwaukee, Wis.
Van Buren, Arkansas
Vermillion, S. D.
Washington, D. C.
Westbrook, Minn.

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Wilmington Lights Heavy Traffic Street

By EDWIN F. KOESTER
Traffic Engineer, Wilmington, Del.

6,000-LUMEN LAMPS MOUNTED 22 FEET HIGH AND SPACED 135 FEET APART, IN STAGGERED ARRANGEMENT

This system provides three times the pavement brightness of the former lighting in Wilmington

SEVERAL years ago the city of Wilmington accepted the principle of modern planned street lighting, and collaborated with lighting experts of the Delaware Power & Light Co. in the preparation of a master street-lighting map based on traffic flow.

During 1937 the by-pass for national route 13 through Wilmington was completed and opened to traffic. Forming part of one of the most heavily traveled highways in the United States, serving both pleasure-vehicle movement between the Washington-Baltimore and the Philadelphia-New York areas, and the heavy truck traffic from Delmarva Peninsula and southern points to the large markets at Philadelphia and New York, this alternate route changed completely the type of traffic on the streets included in its course. Although street beds were rebuilt to accommodate the changed traffic requirements, the area traversed by this by-pass remained residential in character, and the directors of the Street and Sewer Department—President Frank C. Sparks,

STREET LIGHTING IN AND OUT OF MADISON, N. J.

In the business district, Main Street or Route 24 is lighted by 19 1,000-cp incandescents (replacing 400-cp) in GE 79R luminaires equipped with Holophane 11-inch Asymmetric bowl refractors, which direct most of the light onto the highway, mounted on 6-foot brackets, 25 feet to light center, with Union Metal poles staggered 105 feet apart. Outside this district (at right) Route 24 is lighted for 3½ miles by 75 1,000-cp GE sodium-vapor luminaires (replacing 40- to 250-cp) on 8-foot brackets at 25-foot height and spaced 192 feet apart. The work was performed under the supervision of the Madison Water and Light Department, Frank Waters, Superintendent, and the state pays operating cost equivalent to the annual cost of a 250-cp lamp

Henry McC. Winchester and Charles Forwood—in view of the greatly increased traffic decided that a high-visibility lighting system was not only desirable, but a virtual necessity for the protection of both pedestrians and drivers.

This decision was the initial step in the installation of a new-type incandescent luminaire developed by General Electric engineers. It is equipped with a scientifically designed hemispherical reflector which forms the upper half of the unit and is supplemented by deflectors. The reflector catches upward rays of light and directs them downward through the glass globe, while the deflectors keep objectionable light away from nearby houses. The combination of reflector and deflectors in the new unit directs a high percentage of the generated light to the pavement surface. The 6,000-lumen lamps are mounted 22 feet above pavement on wood poles spaced from 125 to 135 feet apart in staggered arrangement.

Business District Relighted

By GEORGE V. L. SPRATT
Mayor, Poughkeepsie, N. Y.

IN SWING with modern times, Poughkeepsie has pepped up its Main Street by installing a new ornamental lighting system, which was completed in October. It extends for more than a mile up from the Hudson River through the city's business section, creating an avenue of brilliant, well-directed illumination. Single-bracket fixtures of simple design replace the old four-light clusters, giving the street a streamlined appearance instead of the cluttered effect produced by the former installation. Not only has this main business street been made more attractive and the buildings been given greater prominence by the new lighting system, but—what is most important—increased visibility and safety have been provided for motor traffic and pedestrians.

The new Main Street illumination (at top) greets visitors as they reach the street from the New York Central Railroad Station, and from across the river it is clearly visible as a streamer of radiance forming the central motif in the pattern of city lights—an effective advertisement of Poughkeepsie's progressiveness

The installation consists of 109 General Electric Form 32 suspension-type luminaires on the original steel poles, which are spaced from 90 to 110 feet apart in opposite positions and served from an underground system. The lighting intensity was increased from the four 80-candlepower lamps, previously used on each standard, to a single 1,000-candlepower lamp. The recently installed system furnishes more than three times as much illumination as its predecessor, applying it more effectively to street and sidewalks. Mounted in a higher position than the discontinued cluster unit, the new pendant No. 146 medium alabaster rippled globe is suspended on a bracket over the curb. This arrangement distributes the light to best advantage and prevents it from glaring into the eyes of motorists and pedestrians. With every unit in operation all night, the new system is a vital factor in policing the main artery of the community and in preventing automobile accidents.

This noteworthy civic improvement was achieved under the leadership of Alderman Herbert Corey, Chairman of the administration's Street Lighting Committee, which made a thorough preparatory study of the advantages, specifications and costs of the proposed new lighting system for its main business section. The committee was assisted by the Lighting Service Bureau of the Central Hudson Gas & Electric Corporation in planning and securing the best of lighting for the purpose.

Simultaneously with the relighting of Main Street, improvements were made in adjoining business areas by using higher intensity illumination. A total of 108,000 more candlepower is represented by all these changes.

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FEBRUARY, 1939

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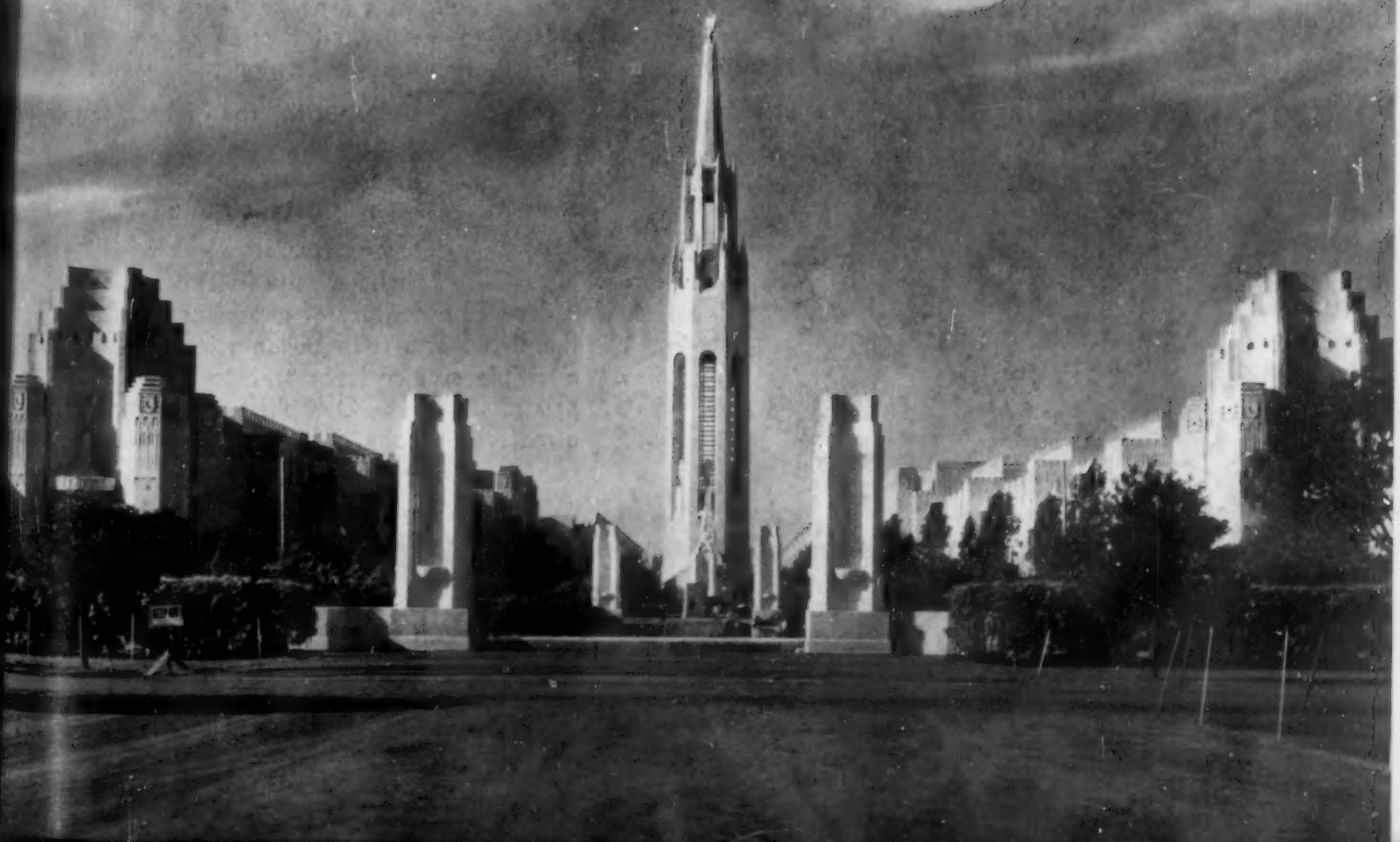
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